

## Damned if I do, damned if I don't: striving for higher grazing returns with fodder crops in northern NSW

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**Abstract:** Long-term returns on assets managed data collected across NSW and Victoria indicate that north of Dubbo livestock returns are inferior to those of farming. In northern NSW, feed quality and quantity are major issues for livestock producers. Rapid cycles of growth and deterioration of feed quality mean that a producer's capacity to finish livestock on pastures remains a large challenge. Returns on grazing assets in northern NSW are inferior to southern grazing assets. Top performing producers in northern NSW utilise higher percentages of fodder crops and pasture improvement in managing for this, but it can come at a high cost, particularly in years where fodder crops do not perform well due to dry conditions.

**Key words:** farm performance, return on operating asset, fodder crop, improved pasture, stocking rate, feed cost

### Introduction

The modern successful farming business is focused on excellent production systems that complement the climate and natural assets available to the business. The capacity of a business to generate returns from its asset base is best measured using return on asset managed for the asset class. This allows for a meaningful comparison of business performance within regions and across different asset classes.

### Return on assets managed

Data from Agripath's 'Profit Focus' program collected from southern NSW and Victoria, indicate that in most mixed farming environments business returns from livestock compare well to the alternative land use of farming (Fig. 1). The top performers consistently produce long-term returns on assets managed (ROAM) of greater than 6%, while average performance is ~3.5%. This suggests that land is priced relative to its productive potential and both livestock and farming production systems can generate returns that are competitive. North of Dubbo is an entirely different story with livestock returns vastly inferior to those of farming. Average long-term ROAM for livestock assets is less than 2% for the North West, North West Slopes, and Liverpool Plains regions. This compares with average long-term

farming returns of 4–5%. The best performing dryland farming assets have returned >6% ROAM averaged over five years, whereas the best grazing businesses have averaged 3.5%. The Northern Tablelands has also struggled to produce competitive asset returns for the value of the land.

One of the main reasons that ROAM for livestock enterprises tend to be lower is due to asset valuation. The farming country in the North West is valued based on its productive capacity from farming, hence average returns are running at the same pace as commercial interest rates. Livestock assets are valued at roughly 50% of the farming value and are not reflecting the productive capacity of these assets. On the Northern Tablelands, the data indicate that only the top quartile of the dataset are operating at levels that match the cost of finance and are therefore setting the price for land in that region (Fig. 1). Improved livestock returns have also led to increased pricing with average asset values in the dataset rising from \$603/dry sheep equivalent (DSE) in 2014 to \$871/DSE in 2018.

### Challenges to a profitable grazing business in northern NSW

A simple response to rising asset value is to conclude that grazing land in the region is overvalued, which is true. However, there are also several unique characteristics of the region that make it particularly difficult to build a profitable grazing business.

**Rainfall.** It can rain at any time of the year and generally, that means that producers who have a mixture of winter and summer-growing pastures have six weeks of feed in all but the coldest months. If it hasn't rained within six weeks it's dry and by 12 weeks, it's a drought. Average winter rainfall is, for most of the area, less than 200 mm and temperatures quickly rise in September and October to reduce the contribution of winter-growing species.

**Growing season.** Grass can grow extremely fast, ~100 kg dry matter (DM)/day, in the warmer months, and it will often very quickly use the available moisture. Feed quality rapidly drops and dry standing feed quality is further reduced from rainfall events that don't materially contribute to additional feed. Compare this with the distinct growing season of southern or northern systems. The southern growing season is defined by an autumn break and a spring finish, is relatively reliable and produces high-quality feed. North of the border in Queensland, where buffel grass and Mitchel grass pastures

are defined by summer rainfall systems, winter rainfall is low, but this helps maintain dry feed quality. While these descriptions are a simplification, the reliable growing seasons do allow for robust livestock systems to be operated.

**Species.** The dominant pasture type across northern NSW is native/naturalised grass pastures. Grass species such as plains grass on the heavier soils, Coolatai and redgrass on the red soils, can out-compete other species but are dormant and of poor quality through the winter months. Native grass pastures often lack legumes and other forbs, apart from native medic that if unfertilised is a low contributor to feed quality. Tropical perennial grasses (e.g. digit grass) have been a recent useful addition but they are expensive to establish and provide feed at the same time as our native grasses and only offer a quantity not quality feed bridge into the winter months. The region lacks a high-quality winter growing perennial grass that performs consistently. Fescue and phalaris only persist in regions of the slopes and plains with higher

Return by Asset Class, 2014-2018

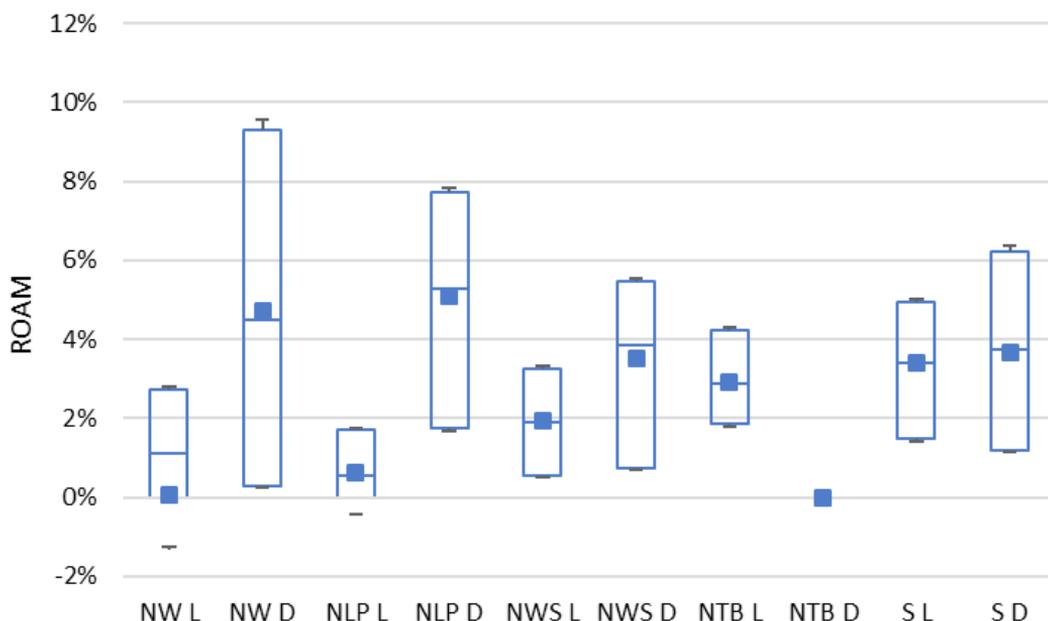


Figure 1. Long-term average return on assets managed (ROAM, % ■) for livestock (L) and dryland farming (D) assets by region; North West (NW), Namoi and Liverpool Plains (NLP), North West Slopes (NWS), Northern Tablelands (NTB), and Southern NSW and Victoria (S). The boxes show the interquartile range (i.e. ROAM for 25% to 75% of properties); middle bar is the median and the whiskers show the maximum and minimum ROAM values.

rainfall and superior soil type. Lucerne pasture can have issues with low ground cover and bloat so is not as widely sown as recommended.

**Soil types.** Heavy Vertosol soils need a lot of rain to get a forage rapidly growing. The red Chromosol soils, however, which were originally farmed are often missing an A-horizon. This means that they can have poor infiltration and low moisture-holding capacity.

### Management responses to unique characteristics

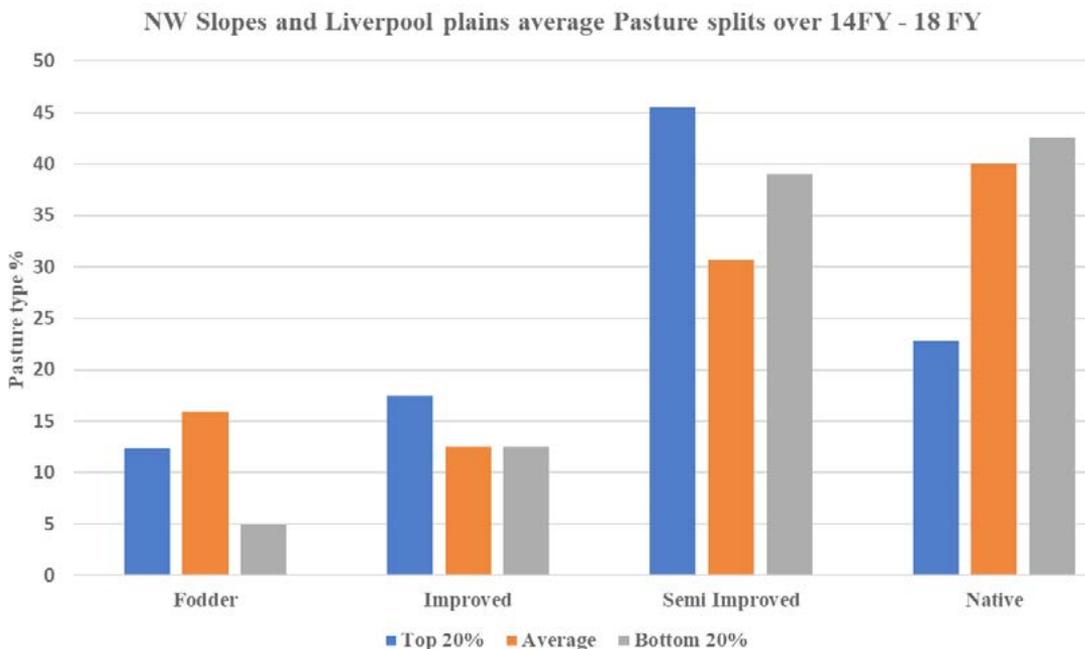
As managers, our ability to deal with the unique characteristics of our region holds the key to generating industry competitive returns of >5% ROAM.

Management responses used by producers to deal with these challenging characteristics include the following strategies:

- Fodder crops to provide the quality and quantity of feed to meet the animal requirement in winter;
- Supplement poor quality grass with non-protein nitrogen to increase utilisation;
- Fertilise to promote the growth of subterranean clover and medic to improve feed quality;
- Lucerne for quality;
- Tropical perennial grasses to improve feed supply and increase stocking rate; and
- Grain-assist to improve weight gains.

The North West Slopes and Liverpool Plains datasets were analysed for the impact of these strategies by comparing the average pasture feed splits for different producers (Fig. 2). Top-performing producers have based their superior performance on improving greater than 75% of their farm area with fertiliser (45%), fodder crops (12.3%) and improved pastures (lucerne, tropical grasses and other pastures, 17.5%). Average farms in the region have improved around 60% of their farm area, but with substantially less improved and semi-improved (fertilised) pasture compared with the top performers. Top producers have a slightly lower reliance on fodder crops, but this has been replaced with more improved pastures.

The proportion of farm area improved had a resultant impact on producer stocking rate, as



**Figure 2.** Long-term (5 years) average pasture splits for producers in the top 20%, average and bottom 20% of performers combined for the North West Slopes and Liverpool Plains.

measured by DSE/ha (Table 1). Top performers, who have more than 75% of the land improved, had a long-term average stocking rate of 7.1 DSE/ha or 1.3 DSE/ha/100 mm (Table 1). The poorest performing farms, with under 60% of the land improved, had an average stocking rate of 4.8 DSE/ha or 0.67 DSE/ha/100 mm. The contribution of each pasture type to the additional stocking rate was difficult to quantify. Experience suggests that fodder crops and improved pastures add significantly to the business’s capacity to finish livestock and improve the winter carrying capacity. Semi-improved pastures assist in increased carrying capacity year-round due to improved feed quantity and quality, and this, in turn, is reflected in animal performance.

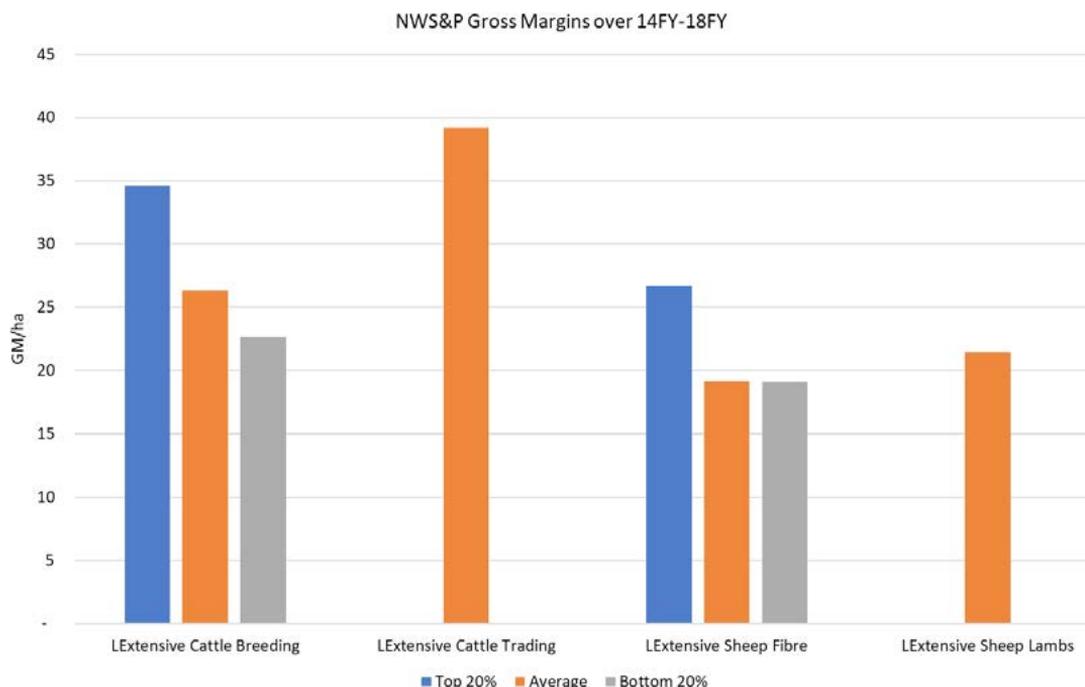
### Enterprise performance

The long-term gross margin per DSE for each livestock enterprise run by producers in the dataset illustrates substantial differences (Fig. 3). Top performers achieved superior enterprise performance compared to their peers. This is due to the combination of genetics, husbandry and the contribution that fodder crops and improved pastures make to their businesses, which supports higher stocking rates and better animal performance.

Growing winter fodder crops and improved pastures does come at a cost, albeit at a cheaper price per kg of DM compared with retained fodder and grain or feed bought in. Average long-term feed costs for beef breeding producers

**Table 1. Impact of proportion (%) of native pasture on long-term (5 years) average stocking rate (DSE/ha) and stocking rate (DSE) per 100 mm of rainfall for producers in North West Slopes and Liverpool Plains NSW.**

Producer group	Proportion of native (%)	DSE/ha	DSE/ha/100 mm
Top 20%	23	7.1	1.30
Average	40	5.5	0.95
Bottom 20%	43	4.8	0.67



**Figure 3. Long-term (5 years) average gross margins per ha (GM \$/ha) for different livestock enterprises of producers in the top 20%, average and bottom 20% of performers in the North West Slopes and Plains of NSW.**

on the North West Slopes and Liverpool Plains are summarised in Figure 4. The chart clearly shows the significant increase in spending on fodder crops and pastures by top performers. These are the two cheapest forms of feed and add significantly to the overall performance of the enterprise.

For many producers, poorer performances are in part due to lower investment in the pasture base. This is often reflected by reduced proceeds from stock sales as livestock are often sold unfinished.

The challenges listed above are largely addressed by having a greater area of fodder crop and improved pastures. The subsequent challenge is, however, that feed related costs make up 42% of the direct costs for top producers. This cost structure works well in years with good rainfall that supports fallow moisture retention in fodder crop country, the early planting of winter fodder crops and adequate in-crop rainfall to sustain growth. Fodder crops can often be grazed 3–4 times during a grazing season and therefore achieve excellent utilisation. In poor years, fodder crops tend to be grazed significantly less, either through the late establishment and or

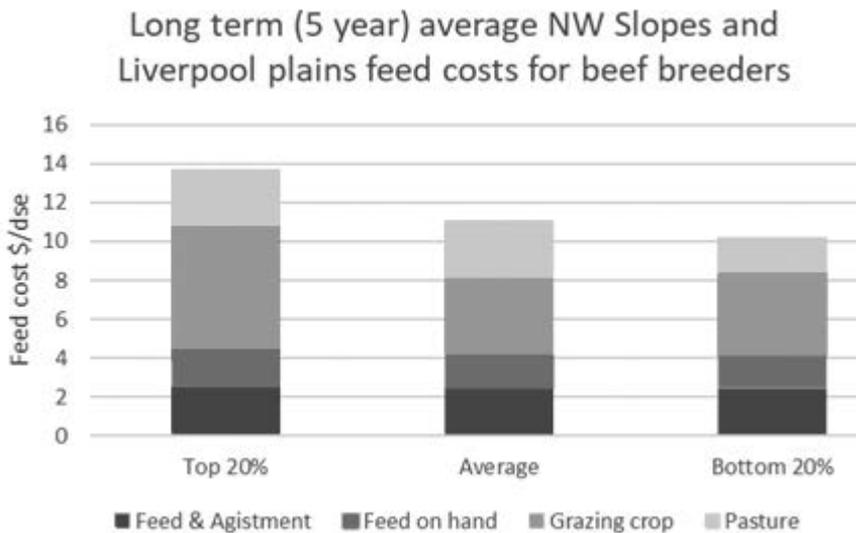
poor in-crop rainfall to sustain growth and can, therefore, become a large cost to the enterprise.

## Conclusions

In northern NSW, winter fodder crops are necessary because without them it is difficult to meet the production targets essential to achieve good enterprise returns. Top performing producers in northern NSW utilise higher percentages of fodder crops and pasture improvement in managing for this, but it can come at a high cost, particularly in years where fodder crops do not perform well due to dry conditions. Hence, striving for higher grazing returns with fodder crops in northern NSW is a case of 'damned if I do, damned if I don't'.

## Acknowledgments

Agripath thank the participants of our New England Tablelands, North West Slopes and Liverpool Plains, North West NSW and Southern NSW benchmarking groups, who without their data this information would not be possible. Agripath also thank and acknowledge Newsome Agriculture for its contribution to the datasets.



**Figure 4.** Long-term (5 years) average feed costs (\$/DSE) for producers in the top 20%, average and bottom 20% of beef breeders in the North West Slopes and Liverpool Plains region.