

Managing pastures to meet feeder steer requirements

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Session 3c - Part 2

As much as we would like to believe that 'things are different in the north', it doesn't necessarily hold true. Pastures are our major resource in the production of beef in Queensland and the general principles of pasture management apply equally in the north as they do in the south — with a few modifications.

We should acknowledge up-front that the southern area of Queensland receives good winter rainfall, has high soil fertility and has the ability to grow good legume pastures and forage crops. As you move north all these things decline; however, to our advantage we have an increasing number of legumes available for use.

As outlined in the preceding paper, animal performance and management must be based on the issues of pasture quality and quantity.

Pasture Quality

As grasses mature, the quality declines due to falling protein and energy levels and lower digestibility. With poor quality pasture for a large part of the year, management must account for this limitation. Herbages, if available, are a source of high quality nutrients, which will be selected by animals, and result in improved weight gains.

Pasture Quantity

Reduced moisture and lower temperatures — or both — end the growing season. The standing

bulk of feed is that which is available until the next significant rainfall event. This is likely to be a lag time of six or more months. Research suggests that pasture utilisation levels should optimally be between 20% and 30% by weight of the available feed, thus long term health of this resource requires you to closely monitor the number of stock and the available feed. Excess grazing of pastures reduces the plants ability to respond to rain and allows increased runoff. This is significant when often our rain comes from storms of short, sharp intensity, often without follow-up.

What is Different in the North?

Tropical v Temperate Plants

The northern Australian (tropical) grasses are termed C4 plants in comparison with the southern (temperate) grasses that are termed C3 plants. Traditionally we have suggested that C4 plants have lower levels of digestibility, however, it is more accurate to say that C4 plants mature faster due to their environment and decline in quality at a faster rate than the C3 plants.

The priority of most tropical grasses is to produce a seed head. Once achieved the plant has completed its lifecycle and pasture quality declines. Many plants will continue to flower and retain green leaf, but their quality will have still declined.

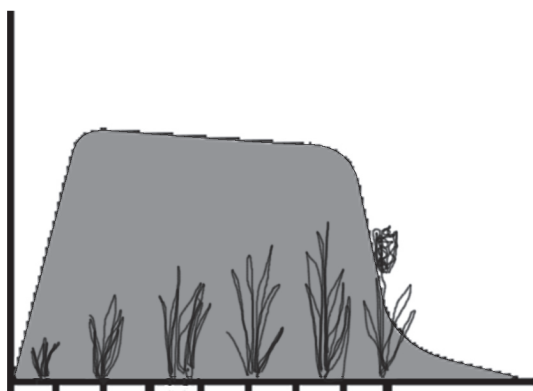


Figure 3c-1. Grass quality drops quickly after flowering.

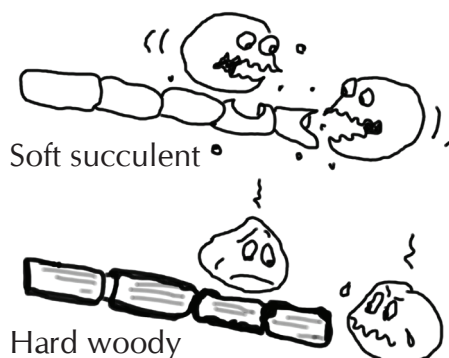


Figure 3c-2. Rumen bacteria take longer to break down old woody feed.

Most tropical grasses tend to grow taller than the temperate grasses. Lignin (indigestible cell wall important for plant structure) is much higher in these grasses, making nutrients less accessible to the animal.

Growing season

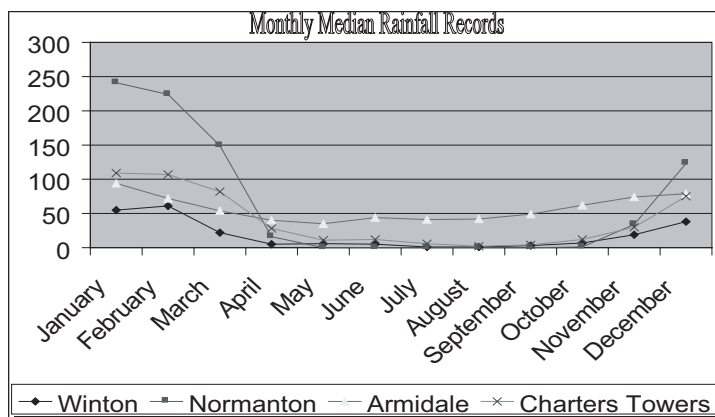


Figure 3c-3. Monthly median rainfall records.

The summer dominance of rainfall increases as you go further north. Southern areas of Queensland can expect some winter rainfall that can produce valuable herbage growth. A number of our species (particularly native grasses) require soil temperature to be reasonably warm before commencing growth. Moisture and temperature have the greatest impact on the length of time plants will grow. The more concentrated the rainfall, the longer the time when pastures are without sufficient moisture for growth (ie. seasonal dry tropics) and hence pasture quality is low. Light falls of out of season rain can cause deterioration in pasture quality.

Tropical pastures tend to exhibit greater variation in the weight gain cattle achieve from them. This can be largely attributed to the way the rain falls and the tropical grass species. Two years with the same rainfall can produce vastly different results in cattle weight gains. This is due to:

1. Rate of maturity: - tropical pastures tend to grow quickly (particularly with a single large amount of rain) causing the pastures to grow and mature quickly, presenting a short, sharp peak in protein levels and a short period of green feed;
2. The poorer soils in the north, tend to have low levels of available nutrients for plant growth, hence a rapid growth phases will quickly extinguish available nutrients and whilst there is plenty of quantity,

the quality is not there and cattle perform poorly;

3. Tropical species of grasses whilst still containing quality material, tend to exhibit all stages of maturity from early shoots of high quality to dead dry material of little value as stock feed.

Sward structure

Tropical pastures tend to have lower ground cover (ie, there are bigger gaps on the ground between plants). This, together with lower quality pasture, means the animals will take longer to consume their full intake and must work harder to attain the best quality diet through selective grazing (refer Figure 3c-4).

What does this mean practically?

For managers in the north it makes the practice of pasture assessment and management even more crucial. Having clear objectives as to what performance is required of the animal is essential. This, combined with the monitoring of the animal's weight gains will indicate if the target weight is attainable.

The result may be deciding earlier to draft animals according to their ability to meet market specifications. The manager has the option to provide some supplement assistance to those that are going to just fall short whilst seeking an alternative market for those that will not make the original target market specifications.

The reduced pasture quality at certain times during the year, requires that supplementation be carried out to maintain sufficient animal nutrient intakes through improved rumen function. Such action may enable animals to



Figure 3c-4. An example of Sward Structure.

maintain weights until the next growing season occurs. It also means that stock numbers need to be correctly matched to pasture reserves to ensure that increased pasture intake (due to supplementation) is accounted for and pasture health is maintained.

The development of Near Infra-Red Spectroscopy (NIRS) for some tropical species is increasing the information available to managers. NIRS can provide indications of animals diet quality though crude protein levels, digestibility and proportion of non-grass. Although still being developed for many land types this information allows better decisions to be made for animal management.

Those wanting more information on animal nutrition and pasture management should attend a Meat & Livestock Australia Northern Nutrition Workshop and Grazing Land Management Workshop run by the Department of Primary Industries.

Improved species

The use of legumes such as Stylo's can enhance the productivity of our pastures by providing a higher protein diet. Stylo's also increase the fertility of the soil which enhances grass growth. Similarly, many of our improved pastures, while being later maturing, better utilise the available moisture. This results in improvement in both pasture condition and production — by an improved ability to handle grazing.

Conclusions

Queensland producers compete in the same cattle markets as our peers in the southern states. While the expected performance of our cattle off pasture may vary, we are still required to manage grazing to enable cattle to meet market specifications. The principles are still the same, we just have to manage within the environmental constraints that we live in.

Acknowledgment

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