



FACTSHEET

Bull liveweight gain and pasture quality

November 2022

Managing pasture quality offers massive potential for improving bull performance. That was the key message from a 2001 Mid Northern North Island Beef Council Beef Production Field Days event. This Factsheet summarises information presented during the event.

The most efficient conversion of pasture to liveweight gain (LWG) is achieved when bulls experience high growth rates.

For example, a bull growing at 0.5kg/day uses a mere 27% of its feed intake for liveweight gain; the other 73% is used for maintenance. A bull growing at 1.5kg/day uses 53% – more than half – of its intake for liveweight gain and only 47% for maintenance. I.e. The higher the growth rate, the greater the percentage of feed intake that goes into liveweight gain and therefore profit.

The positive impact of this efficient liveweight gain is compounded by the bull reaching finishing weight earlier, thereby freeing up feed otherwise required for that animal's maintenance, ongoing.

Feed conversion efficiency

The following table shows a Friesian bull growing from 300kg to 600kg. The bull is going onto pasture cover of 2800kgDM/ha and grazing it down to 1500kgDM/ha.

Feed quality (MJME/kgDM)	Bull LWG (kg/d)	Weeks to finish	Feed efficiency (kg DM/kg LWG)	Feed required
9	0.4	113	20.4	6123
10	0.98	44	10.7	3209
11	1.47	29	8.0	2423

Assuming the highest quality of feed was available (bottom row of table – 11MJME/kgDM), the fastest the bull could reach its finishing weight of 600kg would be 29 weeks. Compare this to the 113 weeks it would take to hit finishing weight, if the animal was on 9MJME/kgDM (first row) quality pasture.

With the bull reaching its finishing weight so quickly – within 29 weeks, compared to 113 weeks – enough feed is freed up to finish, for example, either:

- 44 lambs at 40kg (from an initial weight of 25kg), or
- 4 more bulls.

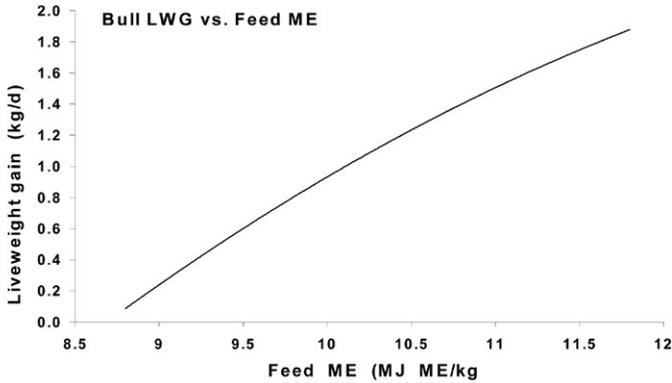
The average feed quality on Waikato bull farms is 10MJME/kg DM. Using the middle row of the table as a guide, a bull would finish within 44 weeks (compared to 113 weeks on 9MJME/kgDM), freeing up enough feed to finish either:

- 22 lambs, or
- 3 more bulls.

Metabolisable energy

The most important nutritional limitation for bulls is insufficient metabolisable energy (ME) intake.

Bull liveweight gain increases, as pasture quality increases. Why? Because the higher the pasture quality, the higher its ME content per kilogram of DM. See graph below.



Feeding a bull more of a low quality pasture does not compensate for the lower ME/kgDM.

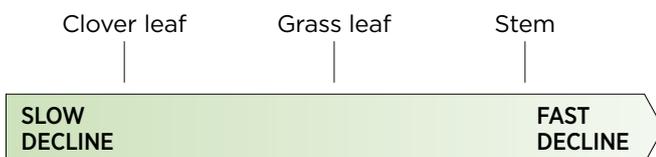
Pasture quality

Impact of pasture variables on quality

Pasture varies in many aspects, including the content of green material, leaf vs stem, clover component, etc.

Higher quality	vs	Lower quality
Green material	vs	Dead material
Clover	vs	Grass
Leaf	vs	Stem
Young (recently grown)	vs	Older
Cooler temperatures	vs	Warmer temperatures

Speed of pasture quality decline:



High quality pasture has

- High content of green leaf
- High content of clover
- Low content of stem and dead matter
- Young (recently grown) herbage
- Grown in cooler (rather than warmer) conditions.

Diet selection and feed quality

The higher a pasture cover, the greater opportunity a bull has to select what it chooses to eat. It will choose the highest quality components first. So, as overall pasture cover decreases, so does the overall pasture quality.

You then see a lower dry matter intake, because of the lower quality pasture.

The key is to move young stock off grazed pasture sooner, rather than later. The lower-quality feed left behind can be cleaned up by low-priority stock or by topping.

Addressing poor pasture quality

There are several ways to offset poor pasture quality:

1. Put weight on stock before feed quality declines and sell/finish before summer.
2. Grow specialist forage to:
 - Increase amount of feed available in winter and/or
 - Provide good quality feed in summer.
3. Control spring pastures.

Options for controlling spring pastures

Having low pasture covers by early November will optimise grass quality through summer and autumn.

Options:

1. Consider buying stock in spring or selling grazing.
2. Restrict winter intake of breeding stock to allow higher stocking rates in spring, when there is a surplus.
3. Use lambing strategically. Increasing lambing percentage, lambing earlier and/or delaying weaning all improve pasture utilisation.
4. Top pasture or conserve as baleage/silage.

Grazing strategies

Options include:

1. Subdividing paddocks.
2. Using lower-priority stock for clean-up grazing.
3. At different times of the year, set-stocking and fast rotations maximise intake, while also helping control pasture when feed is surplus

Other options to address pasture quality

- **Regrassing.** New pastures have less dead material, more clover, less fungal toxins and fewer parasite larvae.
- **Feeding concentrates,** if cost effective.
- **Fertiliser.** This can change pasture composition (e.g. clover content, content of “easily- managed” grasses, also mineral/trace element composition).

Summer forage crops

Why plant a summer crop? It will increase feed quality in summer and help you improve liveweight gain.

A summer crop also provides an assurance against summer dry periods and helps you avoid fungal toxins such as facial eczema and endophytes, and internal parasites.

Take the time to investigate the best crop for your region and operation and ensure cost of establishment meets expected increased growth rates from the crop .

Conclusion

Managing pasture quality requires early, strategic planning. Ultimately, it is about better matching patterns of feed supply and demand throughout the year, across your whole farm system. Maximising pasture quality, so you can maximise animal growth rates, benefits every aspect of your operation – and without significant financial investment.

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