



# FACT SHEET

## BULL LIVE WEIGHT GAIN AND PASTURE QUALITY

Mid Northern Beef Council  
Beef Production Fielddays  
May 14/15 2001

## GROWTH EFFICIENCY

The most efficient conversion from pasture to live weight gain is achieved when bulls have high growth rates. A bull growing 0.5 kg/d or 1.5 kg/d use 27% and 53% of its feed for LWG respectively. In addition for every day longer a bull stays on the farm it requires another day of maintenance feed. The following table shows a Friesian bull increasing in weight from 300 to 600 kg live weight being grazed from 3000 to 1800 kgDM/ha.

Table: Feed conversion efficiency for 300 kg bull growing to 600 kg

Feed Quality (MJME/kgDM)	Bull LWG (kg/d)	Weeks to finish	Feed Efficiency (kg DM/kg LWG)	Feed required	Return Cents/kgDM
9	0.4	113	20.4	6123	7
10	0.98	44	10.7	3209	14
11	1.47	29	8.0	2423	18

If the feed freed up by growing bulls fast was used to finish lambs from 25 to 40 kg then for every bull finished the farm with 11 MJME feed could finish an additional 44 lambs and the farm on the 10

MJME could finish 22 additional lambs relative to the farm with 9 MJME/kgDM feed. Alternatively

you could finish more bulls. The numbers of bulls which could be finished is 4.1, 3.1 and 1.6 bulls/ha for 11, 10 and 9 MJME diets.

The average feed quality recorded on Waikato bull farms is 9.9 MJME/kg DM.

### PASTURE QUALITY

- As with pasture mass, as pasture quality declines bull LWG declines
- Low quality can not be compensated for with high quantity (mass) – as pasture quality drops each kg of DM has less metabolisable energy content and also the animal intake drops
- Pasture quality management offers massive potential for improving bull performance

### PASTURE QUALITY FACTS

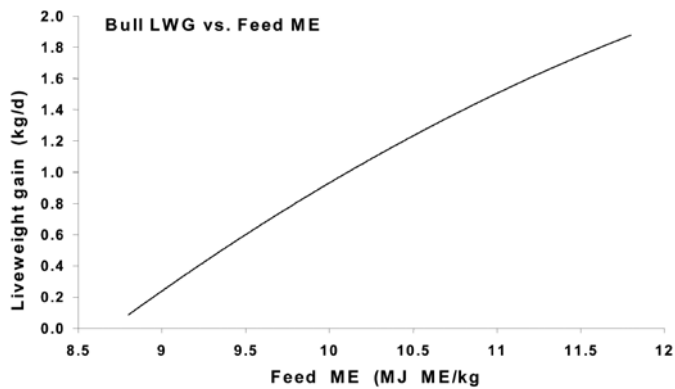
The most important nutritional limitation for bulls is insufficient metabolisable energy (ME) intake (insufficient protein content is not normally a problem)

- Fungal toxins in pasture may reduce intakes e.g. ergovaline,
- Trace elements can be a problem (Cu (on high Mo pastures), Se, Co, I) - get a vet and an animal health plan!
- Contamination with parasite larvae reduces quality (energy is needed to fight the challenge)

### PRINCIPLES OF FEED QUALITY

- Green material has higher quality than dead material
- Clover has higher quality than grass
- Leaf has higher quality than stem
- Quality declines with age
  - Decline is very slow with clover leaf
  - Decline is significant with grass leaf
  - Decline is even faster with stem

- Quality is lower overall at warmer temperatures
- The decline in quality with age is faster at warmer temperatures



### DIET SELECTION AND FEED QUALITY

- Animal selects a diet of higher quality than that offered to them
- Animals' ability to select is greatest at high pasture masses
- As mass drops the highest quality components are eaten first, so the quality of the remainder is lowered
- Hence get compounding effects of lower dry matter intake and lower diet quality – the lesson is to move young stock sooner rather than later
- Low quality feed left after young stock have grazed needs cleaning up (low-priority stock/mower)

### WHAT IS HIGH QUALITY PASTURE?

- It has high content of green leaf
- Preferably it has high clover content
- It has low stem and dead matter content
- The herbage is “young” (as in recently grown)
- The herbage has grown in cooler rather than hotter conditions
- Grazing animals have the opportunity to select a high quality diet

### OPTIONS FOR COUNTERACTING POOR PASTURE QUALITY

- Grow stock well before feed quality declines and then get rid of them before summer.
- Grow specialist forage to increase quantity of feed in winter when feed quality is good
- Control spring pastures and have low mass on farm in beginning of November so that grass quality is optimised through summer and autumn.
- Grow specialist forages for good quality feed in summer

### CONTROL PASTURES IN SPRING:

- Better match patterns of feed supply and demand throughout the year (whole-farm solution)

- High pasture utilisation minimises dead material and stem build-up, maximises leaf and clover content
- Buying stock (consider buying stock in spring) or selling grazing helps control surplus feed Restricting winter intake of breeding stock allows higher stocking rates for control of spring surpluses (rotational grazing is best at high winter stocking rates)
- Increasing lambing %, lambing earlier, delaying weaning improve pasture utilisation
- Topping and conservation
  - prevents low quality feed accumulating
  - conservation provides a saleable product
- Regrassing: new pastures have less dead material, more clover, less fungal toxins, less parasite larvae
- Feeding concentrates: may be cost-effective in some situations (worth another look?)
- Fertiliser application: changes pasture composition e.g. clover content, content of “easily- managed” grasses, also mineral/trace element composition
- Grazing strategies
  - subdivision assists in efficient clean-up grazing
  - integration of livestock classes: clean-up grazing with lower priority stock
  - set-stocking/fast rotations maximise intake, help control pasture at times of feed surplus

### PLANT ALTERNATIVE FORAGE CROPS:

Reasons for a summer crop:

- If bull LWG is particularly poor on a sward due to low production or low feed quality.
- As an insurance against summer dry periods. The crop must be grown before the potentially dry period. Crops inevitably perform better in a summer-wet season than a summer dry season.
- Avoidance of fungal toxins such as FE, endophytes and internal parasites.

If you want to increase feed quality in summer by using a crop then the crop should:

- Generate economic LWG (not always a forgone conclusion)
- Depends on duration of the down time.
- Depends on dry matter production and quality of crop.
- Cost of establishment
- Performance of stock
- Grow well and reliably in your environment. Risk of crop failure!
- Produce a large quantity of palatable green forage, preferably non-grass.
- Produce healthy stock
- Be flexible enough to meet other requirements e.g. Flushing, silage, hay.