Department of Agriculture and Food
GOVERNMENT OF WESTERN AUSTRALIA
Infonote RANGELANDS

Increasing awareness of weight change in feeder bulls between yarding and delivery to the exporter

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A Producer Demonstration Site (PDS) on this topic was initiated by the Kimberley Beef Research Committee (KBRC) to examine:

1. Weight change while stock are waiting at station yards prior to being transported.
2. Weight change in the supply chain between yarding and loading onto the boat.

Method

The PDS measured weight change in 180 Brahman X feeder bulls, initial average liveweight 246 kg (range 200–350 kg), over 28 days, in September 2012. Stock were weighed on day one, twice on day 14 (before and after transport) and on day 28. A 12-hour wet curfew was applied to all treatments prior to weighing, to reduce the influence of gut fill on weights.

Phase one was completed at Leopold Downs station (Leopold), north of Fitzroy Crossing. Stock were randomly drafted into three treatment groups of 60 head:

- shipper pellets (Group 1)
- oaten hay, and (Group 2)
- native pasture. (Group 3)

After 14 days on these feeding regimes at Leopold the feeder bulls were trucked to Roebuck Export Depot (RED), Broome, for phase two of the demonstration.

At Leopold shipper pellets (crude protein (CP) 10% and metabolisable energy (MJ/kg DM) 9.8) were available *ad lib* for feeder bulls in Group 1 only. Oaten hay (CP 4.1% and 9.4 MJ/kg DM) was available *ad lib* for feeder bulls in Group 2 only; two Maxi Graze 60 (CP 60%) lick blocks were also provided to compensate for the low CP content in the hay. Pellets and hay were fed in round poly troughs. The holding paddock where stock were held in Group 3 was black soil plains pasture. At the time of assessment the paddock was considered to be in fair range condition; desirable perennial grasses present were bundle bundle grass (*Dichanthium fecundum*), ribbon grass (*Chrysopogon fallax*) and annual Flinders grass (*Iseilema vaginiflorum*).

Phase two was conducted at RED, Broome.

During phase two all stock were fed shipper pellets (in a feed trough) and oaten hay *ad lib* for 14 days. The same shipper pellets and oaten hay used in phase one were used in phase two.

Results

Phase one – liveweight change at Leopold Downs station (days 1–14)

On day one all stock were randomly drafted into their respective groups, weighed and remained there for 14 days until weighed again. Stock fed shipper pellets gained an average of 11 kg/head after 14 days. Feeder bulls fed oaten hay gained on average 2.7 kg/head and feeder bulls from the holding paddock gained on average 6.8 kg/head.

Table 1 **Average liveweight change (kg) for feeder bulls, days 1–14 at Leopold Downs and during transport to RED**

Ration	Average weight gain (kg/hd)	Liveweight loss during transport (kg/hd)	Liveweight change – 14 days after mustering and delivery to RED (kg/hd
Pellets	11	-13.4	-2.4
Oaten hay	2.7	-8.6	-5.9
Holding paddock	6.8	-13.1	-6.3

Phase two – liveweight change at Roebuck Export Depot (days 14–28)

Liveweight loss during transport between loading stock at Leopold and unloading at RED was recorded. Feeder bulls fed pellets lost an average of 13.4 kg liveweight a head during the 5-hour journey; feeder bulls previously fed oaten hay lost on average 8.6 kg; and feeder bulls from the holding paddock lost on average 13.1 kg.

Change in liveweight for phase two was calculated by comparing the weight of feeder bulls on arrival at RED and their weight after 14 days on feed. Induction weights at Roebuck were recorded after stock had been off food for 21 hours, this included a 12-hour wet curfew (at Leopold); transport to RED was 5 hours and weighing pre and post-trucking took 4 hours.

Stock previously fed pellets at Leopold gained most weight during 14 days at RED; feeder bulls from the holding paddock gained the least (Table 2). Feeder bulls fed oaten hay were about midway.

Table 2 **Average liveweight change (kg) for feeder bulls, days 14–28 and adjusted for recovery of 'gut fill' due to fasting and transport**

Ration	Average weight gain (kg)	Average gain (kg) Less 'gut fill'
Pellets (previously fed pellets at Leopold)	29.9	16.5
Pellets (previously fed oaten hay at Leopold)	24.9	16.3
Pellets (previously in holding paddock at Leopold)	21.3	8.2

Liveweight change over project duration (days 1–28)

Feeder bulls fed pellets over 28 days gained the most weight, calculated between the first weighing on day one and the last weighing on day 28. Feeder bulls initially from the holding paddock gained the least (Table 3); liveweight change from feeder bulls initially fed oaten hay was slightly better.

Table 3 **Average liveweight change (kg) for feeder bulls over duration of demonstration, days 1–28**

Ration	Weight gain (kg)
Pellets for 14 days at Leopold and 14 days at RED	27.5
Oaten hay for 14 days at Leopold and pellets for 14 days at RED	19.0
Native pasture (holding paddock) for 14 days at Leopold and pellets for 14 days at RED	15.0

Feeder bulls from Group two (green tags) eating oaten hay.

Discussion/summary

Phase one – at Leopold Downs station (days 1–14)

Feeder bulls fed shipper pellets recorded the highest liveweight gain during Phase one at Leopold; probably due to the (formulated) nutritional value of the pellets. Oaten hay used in the trial was 'good sweet hay' (export quality). Feeder bulls foraged and burrowed through each bale, eating the seed head (most palatable) first and leaving a trough full of straw. The two lick blocks were only lightly utilised over the first few days; lick consumption steadily increased thereafter. Pellets represented a more balanced and consistent diet than oaten hay which varied in quality.

Feeder bulls in the holding paddock gained on average 6.8 kg over 14 days. Due to the time of the year (September) when forage quality is typically low, it was expected that feeder bulls would have only just maintained their weight, not increased it. Visual observations in the holding paddock showed that stock were browsing mimosa (*Acacia farnesiana*) and sensitive plant (*Neptunia dimorphantha)*. This is common during the dry season.

Phase two – at Roebuck Export Depot (days 14–28)

Feeder bulls previously fed pellets and from the holding paddock at Leopold similarly lost on average 13.2kg liveweight during a 5-hour road trip to RED. This is equivalent to what nearby stations have also recorded during similar journeys.

A significant portion of liveweight gain at RED was due to replacement of gut fill lost during transport. Feeder bulls already accustomed to hay or pellet feeding at Leopold gained on

average 16.4 kg liveweight after 14 days on feed at RED. This was on average 8.2 kg more than the group grazing the holding paddock at Leopold.

Good management and feeding at RED in combination with good on-station management resulted in a 30 kg a head advantage over cattle which might have been sold on weight at arrival at RED immediately following mustering.

Liveweight change over duration of trial (28 days)

The hypothesis of the demonstration—*cattle fed shipping pellets throughout the trial will have gained the most liveweight at the conclusion*—was proven correct. However, a much greater difference in weights between stock fed oaten hay at Leopold and those held in 4 mile holding paddock was expected at the conclusion of the trial, considering the time of the year (September) and low CP content of the native grasses.

The trial showed that feeding shipper pellets to cattle stockpiled on-station resulted in heavier cattle at sale than the same cattle fed oaten hay. Stock previously fed shipper pellets on-station were accustomed to pellets when delivered to RED and performed better than other groups trialled; once again resulting in heavier cattle at sale.

Jack O'Donnell (Leopold Downs), weighing bales of pressed oaten hay. Jack is also a descendant of the late explorer WJ O'Donnell, a Kimberley pioneer ~ late 1800s.

Acknowledgements

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