THE AUSTRALIAN LOWLINE IMPROVEMENT POTENTIAL

(FACTS AND FIGURES)

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Given the fact that the Lowlines were released in an umimproved (bastardized) state, this paper intends to explore the undeniable potential for the breed's improvement/development.

The variance in growth rates (both male and female) can be accurately obtained by comparing the growth rates of the top and bottom 15% of animals in the Foundation Herd Book. For the remainder of this paper the top (performing) 15% of animals will be referred to as **HERD A**, while the bottom (performing) 15% will be referred to as **HERD B**.

BULL AVERAGES

HERD	Birth Weight	Weaning Weight (kgs)	Weaning Age (Days)	Yearling Weight (kgs)	Yearling Age (Days)
A	22.75	183.5	213.5	218.25	364.0
B	17.75	134.0	229.0	172.25	379.5

After converting to 200 day (weaning) and 400 day (yearling) the figures reveal:

HERD	200 Day Weight (kgs)	400 Day Weight (kgs)
A	173.33	237.85
B	119.25	180.59

HEIFER AVERAGES

HERD	Birth Weight	Weaning Weight (kgs)	Weaning Age (Days)	Yearling Weight* (kgs)	Yearling Age* (Days)
A	25.32	186.70	204.05	214.0	349.6
B	19.94	121.88	211.58	149.2	336.5

* Unfortunately the Foundation Herd Book does not contain all Yearling Weights and Ages. The averages are from those with full information supplied

Converted to 200 and 400 day weights :

HERD	200 Day Weight (kgs)	400 Day Weight (kgs)
A	183.49	241.18
B	116.30	173.61

COMMERCIAL REALITY:

After applying the above figures to a one hundred cow herd , 100% calving, 50-50 male female split it is found that:

> At weaning (200 days) HERD A produces 6,063.5 kgs more calf liveweight than HERD B
>
> At yearling (400 days) HERD A produces 6,241.5 kgs more yearling liveweight than HERD B

EFFICIENCY

During the "Implications of Selection for Growth" trials, total pasture dry matter intakes were estimated using "Captec Chrome" intraruminal controlled release devices. There was a large variation in feed intake and efficiency between cows within each line at Trangie and Glen Innes independent of difference in cow weight and size[1].

> **HERD A** consumed an average of 2,409.4 kgs (dry matter) and weaned calves averaging 171.8 kgs.
>
> For evey tonne (1000 kgs) of dry matter consumed an average of 71.304 kgs of calf liveweight was produced.
>
> **HERD B** consumed an average of 3,218.8 kgs (dry matter) and weaned calves averaging 130.4 kgs.
>
> For every tonne (1000 kgs) if dry matter consumed an average of 40.511 kgs of calf liveweight was produced.

COMMERCIAL REALITY

As the cost of production is critical to profitability in a beef producing enterprise, efficiency of the cow-calf unit is of great importance. At a market price of $1.00 per kg calf liveweight HERD A would return $71,304 per 1000 tonnes dry matter consumed. HERD B would return $40,511 consuming the same amount of feed.

It is reasonable to expect a $ 0.15 per kg premium for the calves from HERD A given their higher weight and better finish. This would give a total return of $81,996 for the calves from HERD A

Efficiency is a heritable trait. Selection for efficiency will increase the return for each unit of feed consumed.

HARDINESS & FERTILITY

Poor conception rates usually occur when the cows are subjected to stress (feed shortages) due to harsh seasonal conditions. Lowline breeders have observed the ability of their cattle to handle drought conditions more easily than their recipient cows over the past 5 years.

The following tables[2] from the Hamilton trials give an indication of the ability of the Lowline to handle high grazing pressures

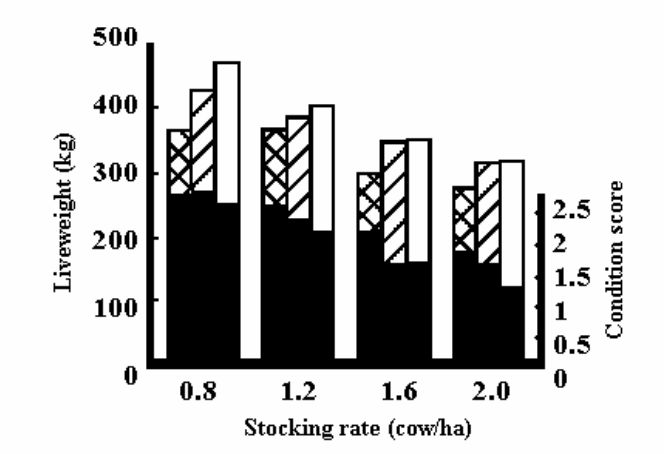
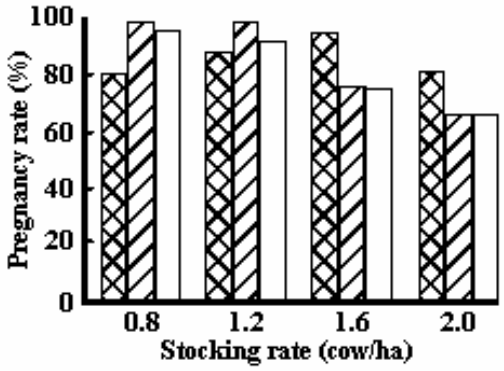


Figure 6. Cow liveweight and condition score (closed bars) at the end of mating, of low (cross hatch bars), control (diagonal hatch bars) and high (open bars) growth rate lines at 4 stocking rates.

Figure 7. Pregnancy rates of the low (cross hatch bars), control (diagonal hatch bars) and high (open bars) growth rate lines at 4 stocking rates (4 year average).



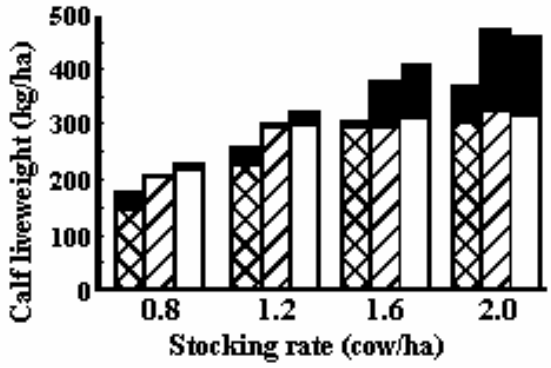


Figure 8. Calf weaning weight (kg/ha), calculated using 100% pregnancy rates (solid bars), or using the actual pregnancy rates of the low (cross hatch), control (diagonal hatch) and high (open bars) at 4 stocking rates.

Table 8[3] shows the average amount of hay that was fed for years 1990 to 1993.

STOCKING RATE (Cows/ha)

LINE	0.8	1.2	1.6	2.0	MEAN
LOW	0	0	0	19.7	4.9
CONTROL	0	0	12.9	107.2	30.0
HIGH	0	0	41.9	259.8	75.4
MEAN	0	0	18.2	128.9	36.8

Table 8. Mean amount of hay fed (kgs) per cow for the 3 lines and 4 stocking rates

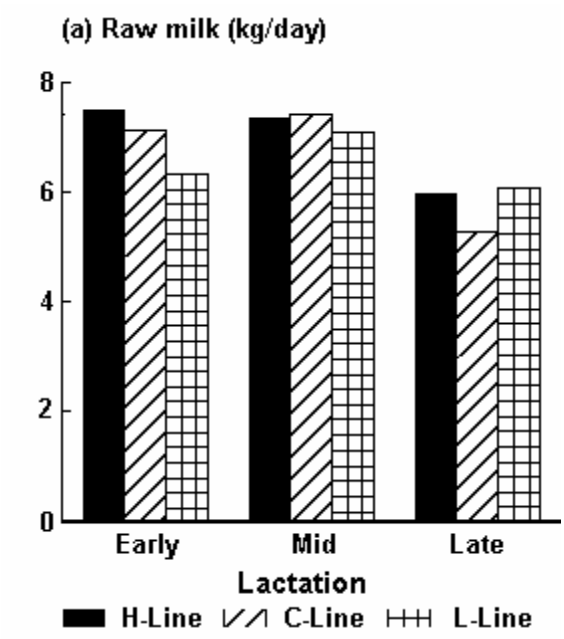
COMMERCIAL REALITY

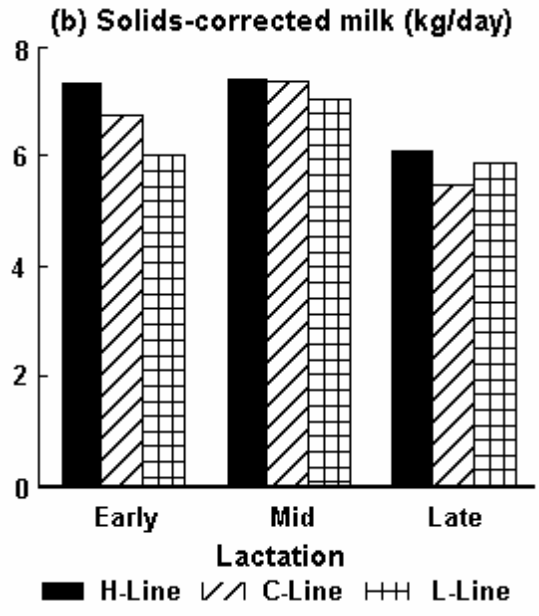
Supplementary feeding lifts the cost of production, thereby eroding the profit margin. During severe droughts and feed shortages, the cost of fodder escalates and in some cases feeding is not considered a viable option.

The productive value of a cow is determined by her ability to produce a calf every year.

MILKING ABILITY:

The ability of the cow to produce ample quantities of milk over an extended period is a desired attribute of the Lowline breed. The tables[4] below indicate the potential of the Lowline in this trait.





An early pioneer of the Angus, Hugh Watson (Keilor, Angusshire, Scotland) bred his cows to rear 5 vealers each year. Reports from this early period reveal the daily milk production from Angus cows to exceed 20 litres[5].

The quality of the milk is equally important and tests in New Zealand revealed that the Aberdeen-Angus produced 0.05% more butterfat than the Jersey[6].

At Trangie, milk sampled from Lowline cows tended to have a slightly higher metabolizable energy comntent (2.8MJ/kg) than milk sampled from High line cows (2.7MJ/kg), whilst milk from the Control line cows had the lowest ME content (2.6MJ/kg)[7].

COMMERCIAL REALITY:

As the Lowline is only suited to the local trade (8-18 months) rapid early growth is essential. For the calf to achieve acceptable market weights it is essential that its dam supplies both quantity and quality of milk.

POST-TRANGIE

In just over five years since the Complete Dispersal Sale at Trangie, promising results are being achieved by those studs actively seeking improvement.

On release, the average age and weight of heifers at puberty (first oestrus) was 14-18 months and 220 kgs respectively[8]. Today, in improved herds, these figures have been lowered to 7-10 months and 220-240 kgs.

Many good weights are being achieved by Embryo Transfer and natural calves alike. Some of the better results from natural calves have been:

Calf	Sex	B.W	100 Day	200 Day	300 Day	400 Day
BA Kaptain Midnight	M	29	131	219	269	326
Bellbrae Bushranger	M	27	109	227		
Broken Arrow Milkmaid	F	27	122	202	252	

Both ***Broken Arrow Kaptain Midnight*** and ***Bellbrae Bushranger*** were reared on 2 year old first-calf heifers.

IMPORTANT NOTICE

This paper is not written to cast doubt on the research or findings at Trangie because it is a well known and accepted fact that selection for high growth will increase the gross income from a beef herd but not necessarily the net profit.

It is written only to highlight the variation within the Lowline breed. If this variance is removed by careful selection the Lowline will become a much more valuable animal with its own place and role in the beef industry.

REFERENCES

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2 Contract Review Paper J F GRAHAM pp 7-8 *ibid*

3 The per Hectare productivity of the Trangie Angus Growth Selection Lines. J F GRAHAM 1994 Page 17

4 Efficiency of Beef Production from cattle selected for different growth rates 1991 Dr R M HERD Ms D PERRY Page 17

5 History of Polled Aberdeen or Angus cattle. James Macdonald & James Sinclair. William Blackwood and Sons. Edinburgh & London 1882. Page 88

6 The Aberdeen-Angus Breed - A History, J R BARCLAY, M.B.E. & A KEITH, M.A., The Aberdeen-Angus Society, Aberdeen 1958 Page 576

7 Beef Cattle Improvement through Breeding Methods Prepared by Dr P F PARNELL 1995 Section 2:21

8 From information published by the Australian Lowline Cattle Association, 1994