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Producer Research Support

Double B Beef Promotion Assoc Inc

Nutrition/supplementary feeding investigation and management

A sound understanding of what supplements cost and the estimated benefits being delivered must be calculated to ensure feeding is profitable.

The Double B Beef Promotion Association aimed to move to a situation where nutritional assessment and action becomes second nature and part of day-to-day management strategy. They worked to understand alternative cost-benefit approaches and develop systems to capture and utilise feedback from customers and the Meat Standards Australia (MSA) program.

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The project

Supplementary feeding can improve the productivity and profitability of beef cattle grown in the Bingara/ Barraba region of NSW.

The influence 10% gut shrink (between a full beast and a 12-hour dry curfew beast) can have on Average Daily Gain (ADG) figures, especially over small time periods, can be the difference between profitable and unprofitable supplementary feeding.

The Double B Association (BB Group) was formed in 1984 to capitalise on the reputation of the Bingara/ Barraba area of northern NSW for quality cattle and the ability to consistently produce high finished yearling cattle from improved pasture and crop.

Group spokesperson Garry McDouall said analysis of 25,000 cattle marketed through the group from 1984–1999 showed there was clearly a greater problem with finished cattle consistency than members thought.

It was also considered that a greater understanding of cattle nutrition, pasture quality and quantity and the potential role of supplementary feeding by members would have significant production benefits and increased profits.

"It was suspected that for most members the use of supplementary feeding was ad hoc and too late to halt the decline in animal production," said Mr McDouall.

It was thought that information transfer was 'drought induced' and focused on survival, rather than production. In March 1999 the BB Group conducted a supplementary feeding field day for its members. Out of this it was decided that member experiences and current supplementary feeding regimes could be documented to increase the awareness of the potential benefits and costs of supplementary feeding for the remainder of the group.

Funding was sought for a supplementary feeding and nutrition Producer Research Support project. The trial had four specific goals:

1. Improve the BB group members' knowledge of animal nutrition, pasture quantity and quality, the identification of feed gaps and the techniques available to fill these gaps;
2. Set clear goals in any supplementary feeding program while understanding the potential cost-benefits of supplementary feeding and the potential costs of not maintaining a constant plane of nutrition;
3. Establish techniques for the regular monitoring of nutritional requirements; and
4. Use the BB group dynamics to allow the full disclosure and discussion of the trial results within the group and the remainder of the industry.

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Producer Research Support

MLA Producer Research Support offers support funding of up to $15,000 over three years for groups of producers keen to be active in on-farm research and demonstration trials.

These activities include:

- Producer Initiated Research and Development
- More Beef from Pastures demonstration trials
- Prime Time Wean More Lambs demonstration trials
- Sustainable and productive grazing grants.

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Objectives

1. Improve the knowledge of group members about animal nutrition, pasture quantity and quality, identification of feed gaps and the techniques available to fill those gaps. This will result in improved productivity per beast and per hectare, timelier turnoff patterns, the ability to capitalise on market opportunities and better carcase quality;
2. Work with three customers providing feedback to producers to underwrite the lessons learned. The three customers identified were:
   a. Banksia Beef (BB). A joint venture between Double B, Ebor, Border Beef Groups and Warwick Bacon. Once specifications were determined, have each supplier achieving 95% compliance within a year, with 85% achieving the top rate on the grid.
   b. Hereford Prime/Lee Pratt. To lift MSA compliance from a current 85% 'three star or better' to 95%. (This objective was complicated by the move to cuts-based grading and at that stage, the constantly evolving status of MSA.)
   c. Pacific Pride. For a lotfed product, 95% compliance with Woolworths' short-fed domestic specifications.
3. Ensure each supplementary feeding program has clear goals, including to lift weight gain over an identified period from 0.4kg/day to l.0kg/day; to understand the cost benefit; and to show the full benefit from weight gain, yield and a better rate on the grid due to heavier carcases and increased flexibility in timing of sales;
4. Move from a stage where 50% of the group regularly monitor pasture and nutritional requirements on a regular basis, compared with only a small number of producers at the start; and
5. Lift nutrition from a low profile within the group to a subject constantly in front of members.

What was done?

A supplementary feeding committee was established with a chairman to oversee the trial and to ensure that all information was collected, documented and reported back to the BB group, a project coordinator was appointed.

Two distinct geographical groups exist within the BB membership based on property altitude. Two loose groups were set up based on this divide – the higher altitude 'Cool' group and the lower altitude 'Warm' group. Four producers from each of these groups volunteered to participate in the trial using a range of supplementary feeds.

However, due to changing circumstances (seasonal conditions and cattle sales) there were two participants from each group.

Another participant from outside the BB area was included to increase the number of supplementation programs described.

Table 1. Costs and benefits from supplementary feeding at Aileel

Copra Fed	Cost (cents/hd /day)	Weight Gain (kg/hd/day)	Days fed over period	Cost per head ($/hd over period)	Assumed gain from supplement
	24	1.2	42	$10.08	1.2-0.25
= 0.95 kg/hd/day, cost of @$1.25 per kg = per head dollar value = $49.87					
Note: Cost of supplement delivered on-farm $240/t					

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MLA also recommends

BeefPlan

BeefPlan is a non-traditional approach to learning. Groups of like-minded beef producers, work together as a management team to focus on property management. Importantly the learning agenda is set and controlled by the group.

Contact Steve Banney - Project Coordinator Tel (07) 4093 9284 or sdb@austarnet.com.au

EDGEnetwork

EDGEnetwork offers practical field-based workshops to improve productivity and profitability for the long-term.

Workshops cover breeding, nutrition, grazing management, marketing and selling.

Call MLA on 1800 993 343 or www.edgenetwork.com.au

Tony and Judy Brown, Romani Partnership – Oats with copra.

Thirty two steers averaging 282kg were weighed onto a 20-hectare paddock of oats supplemented with copra and minerals in early August 1999. Cattle were re-weighed about eight weeks later.

Thirty steers were put into an oats paddock and supplemented with copra (kg/hd/day), Biostart, Supermin, and 15% urea. The total cost of supplement was 38 cents/head/day or $21.62/head over 54 days.

Table 2. Costs and benefits of supplementary feeding at Romani

Weight gain (kg/hd/day)	Days Fed over period	Cost Per Head period $/hd over period	Assumed gain from supplement
1.3	57	$21.62	1.3-1.0 = 0.3 kg/hd/day x 54 * $1.25 per kg = $21.37 1.3-0.8 = 0.5 kglhd/day x 54 ** @$1.25 per kg = $33.75

* Assuming production of 1.0kg/hd/day off oats with no supplement.

** Assuming production of 0.8kg/hd/day off oats with no supplement.

Garry McDouall, Bookabah Pastoral Co – Native pasture with copra and urea-based dry mix.

Weaners and young cattle in a cell grazing operation were supplemented with 1kg/hd/day of copra, plus a dry mix containing 12% urea. Feed conditions during winter were difficult with no legume base (clover) to complement dry feed. Supplementation continued through to early spring.

Cattle grazing improved and natural pasture were supplemented with copra at l.0kg/hd/day + 50g/hd/day of urea-based loose mix in 8ft self-feeder.

The objective at Bookabah was to lift performance of home bred and bought weaners during the traditional March and April dry period. Given the dry conditions that existed over winter, the duration of supplementary feeding was extended. All cattle were run together in a cell grazing rotation. For identification in later analysis, the different cattle groups were labelled as 240 Bookabah steer weaners (Group 1) and 100 bought cattle (Group 2). All the cattle were run as one mob.

Table 3. Gains over time at Bookabah

Timeframe	Group	Gains (kg/day)
7 March - 22 May	Group 1: 240 steer weaners	0.73
22 December - 22 May	Group 2: 100 bought cattle	0.75
22 May - 6 July	Group 3: 200 bought cattle introduced into the same grazing rotation and supplementary feeding	?
22 May - 6 July	Group 1: 240 steer weaners	0.4
22 May - 6 July	Group 2: 100 bought cattle	0.41

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Table 4. Cost and benefits of supplementary feeding at Bookabah
Benefits gained 7 March - 6 July

Supplement	Cost of Supplement ($/hd/day)	Measure
Copra*	$0.24	1kg/hd/day @ $240/t
Urea Brew	$0.03	50g/hd/day
Labour	$0.03	1hour/day @ $15/hour/540 head
TOTAL COST	$0.30	per head / per day

	Historical ADG (kg)	Measured ADG (kg)	Gain for Supplement (kg)	Value of Gain @ $1.25/kg on farm
Group 1	0.27	0.61	0.34	$0.43
Group 2	0.27	0.62	0.35	$0.44
Group 3**	0.00	0.25	0.25	$0.31

*Historial estimate averaged across the two periods discussed

**For Group 3 the calculation is only for May-July

Garry McDouall, Bookabah Pastoral Co – Baden McDouall, Calco Enterprises – Molasses with phosphorus and salt.

About 250 steers were supplemented with molasses containing phosphorus and salt on native pastures with a good base of clover. The cattle were weighed into the paddocks. Equipment failure meant no exit weights were recorded.

Andrew Wilkie, Glenlovely – Native pasture with Annipro®, a pre-mixed, paddock delivered molasses based supplement.

At the end of May 1999, 85 weaners were weighed (12 hours off feed and water) and then put into a paddock containing good, dry native pasture but little green herbage or clover. After 30 days the weaners were moved to an adjoining paddock with very similar feed. Consumption rates per head of supplement were measured regularly.

The cost of the Annipro (Molasses and Urea + Micronutrients) fed to weaners on native pasture delivered on farm was 52cents/litre.

Table 4. Cost and benefits of supplementary feeding at Bookabah

Consumption Cost/Head (litres/head/day)	Consumption – Urea (g/head/day)	Cost (cents/ head/day)	Weight Gain (kg/hd/day)	~ Days Fed Over Period	
0.33	23.0	17.5	-0.06	63	$11.02

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What happened?

Mr McDouall said due to the spread of the properties involved in the trial and the associated variables in rainfall, seasonal conditions, land type and pasture composition, the trial was a "descriptive study", with no direct comparison between the different feeding programs carried out.

Costs and benefits

Supplementation had a positive effect on animal performance in all feeding programs except one.

By comparing the measured average daily weight gains (ADG kg/hd/day) against historical averages and estimates, a dollar benefit was attached to the feeding program.

The feeding program, which had the highest dollar return for the cost of feeding, was Aileel (Table 1). Feeding copra meal at 1kg/hd/day to cattle on oats resulted in a lift of 0.95 kg/hd/day in ADG (1.2kg/hd/day compared to 0.25kg/hd/day on straight oats). cThis lift in production over a six-week period was worth about $50 per head (at a conservative $1.25 on-farm) for a cost of $10 per head in supplement. Garry said while the short time period and potential difference in gut fill could have distorted the ADG figures slightly, there was still significant difference in weight gain on cattle supplemented with copra meal while grazing oats.

Cattle fed on oats at Romani and supplemented with copra and minerals had ADGs of 1.3kg over the two months they were fed (Table 2). He said if the production due to the oats was estimated at l.0kg/head/day the extra production from the supplement was worth $21.37 for a cost of supplement of $21.62. However, if the value of the oats was only 0.8kg/head/day then the value of production due to the supplement was $33.75 for a $21.62 cost – a net benefit of $12.13 per head.

Tony and Judy Brown, Romani, where happy with the trial results and were planning to continue with the program, with a change from copra meal to cotton seed meal based on relative price.

At Bookabah Pastoral Company cattle grazed on improved and native pasture were supplementary fed Copra and a loose mix brew containing urea and trace elements. Two groups of cattle were run together as a single mob in the first weigh period from March to May, while Group 3 was added to the mob for the second weigh period from May to July. During the March to May period Groups 1 and 2 recorded ADGs of 0.73 and 0.75kg/day.

Historical records of comparative seasons suggest that liveweight gains of 0.35kg/day could be expected for cattle grazing on native pasture without supplementation. For the second weigh period Groups 1 and 2 recorded an ADG of 0.4kg/day. The dry winter conditions present during this period suggested that without supplementation, cattle would have, at most, maintained liveweight and most likely lost weight. When the costs and benefits where analysed (Table 3) for Groups 1 and 2, a net profit of $0.13 per head per day was calculated. Over the 121 days for March to July this was a net profit of $15.73/head.

Mr McDouall said Group 3 did not perform as well under the supplementary grazing conditions. These bought-in cattle were introduced to the mob in May. From May to July the steer portion had ADGs of 0.25kg while the heifer portion recorded no liveweight gain.

The heifer portion was speyed prior to joining the mob and this could have contributed to their poor performance. However, even given these lower than wanted weight gains, the analysis of the costs and benefits for Group 3 (Table 5) showed a breakeven position was reached.

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"This raises the question of how poorly these cattle may have performed given no access to supplement."

Mr McDouall said he was planning to repeat the same strategy, with some small changes, based on two key lessons learned from 1999:

1. self-feeder was adequate for 340 head but not for any greater numbers. The self-feeder was not big enough for 540 head; and
2. If introducing new cattle to a mob already on supplement, the new mob should be fed Copra separately before introduction. This reduces problems with non-eating and competition. This may have suppressed the poor performance of Group 3 further.

The feeding of Annipro at Glenlovely was the one program where no positive liveweight gains were recorded during the trial. However, anecdotal evidence based on the very dry seasonal conditions (little medic or herbage growth) encountered during the trial suggested the weaners may have lost as much as 30kg liveweight over that time period.

If a value of $1.25/kg is put on this liveweight, the cost of $11.02 per head for the supplement is offset by the potential $37.50 loss. Garry said this was an effective net gain of $26.50 per head.

Supplementary feeding of weaners was to be continued at Glenlovely with a focus away from the pre-mixed supplement to a cotton seed and urea-based loose mix.

Meat quality

Mr McDouall said there was concern within the BB group of the possible impact of feeding copra at high levels (1.0kg/hd/day) on meat quality, particularly meat colour. Feedback on two mobs fed copra during the trial was analysed.

A mob from one property was processed at two domestic works and achieved excellent fat and weight compliance levels. From the chiller assessment, four of the 34 (or 11%) were downgraded on meat colour.

The second lot recorded a much higher percentage of cattle with high meat colour (about 50%). However, these cattle had not been fed copra for up to six weeks before slaughter and the BB group marketing coordinator believed other factors may have contributed to the high number of dark cutters.

A third line of cattle from a BB property which were not involved in the trial but fed copra to cattle at around 1.0kg/hd/day were also traced through to slaughter and did not display any evidence of dark meat colour.

"While there is no conclusive evidence on the effect of copra on meat colour, further research may be appropriate," Mr McDouall said.

"It is believed other factors such as genetics, temperament, socialisation and transportation have a greater effect than copra."

Mr McDouall said one of the project objectives was to improve the level of knowledge of BB group members about animal nutrition, pasture quantity and quality, the identification of feed gaps and the techniques available to fill these gaps.

The running of the NSW Agriculture PROGRAZE® course simultaneously with the supplementation trial met this requirement.

He said future efforts should concentrate further on getting members to question current feeding regimes and to work out exactly the feeding targets and costs and benefits in reaching these targets.

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