Vasse Feed Conversion Efficiency Trial

Field Day

Wednesday the 2nd of May 2001

Vasse Research Station

Presented by the

Limousin, Murray Grey, South Devon, Blonde d'Aquitaine, Charolais and Gelbvieh Breed Societies,

Vasse Research Station

and the Meat Program,

Agriculture Western Australia

Agriculture
WESTERN AUSTRALIA

Program

9.30am	**Morning tea**
10.00am	**Field day opening** *Dr Greg Sawyer, Agriculture WA*
10.15am	**Can we select for improved feed efficiency, and are there real benefits?** *Steve Exton, NSW Agriculture, Trangie*
11.00am	**Trade exhibits**
11.20am	**Practical advantages and pitfalls when performance testing with special reference to feed conversion under South African conditions** *Kenny Crampton, Breed Director, South African Angus Breed Society*
11.50am	**Questions to both speakers**
12.20pm	**The Vasse Feed Conversion Efficiency Trial 2001** *Dr Alan Lymbery, Murdoch University*
12.30pm	**Trade exhibits, bull inspection and lunch** BBQ provided
2.00pm	**Sale of yearling bulls**

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Can we select for improved feed efficiency, and are there real benefits?

Steve Exton, NSW Agriculture, Trangie

Why improve feed efficiency ?

Most beef producers are probably intuitively aware of the importance of utilising feed resources as efficiently as possible for profitable beef production. The costs of providing feed to cattle are large, and form the major part of the costs of producing beef. For cattle fed intensively, the costs of feed include the cost of purchasing the ration ingredients, costs of processing the feed and feeding out. For cattle on pasture the costs include the cost of land ownership, fertiliser, pasture improvement and supplementary feeding. As feed is such a large component of the cost structure for beef production, improvements in how efficiently feed is utilised will have an impact on profitability.

Defining feed efficiency

Feed efficiency can be defined in many different ways. However, there are two ways of defining feed efficiency which are useful to consider. The first of these is feed conversion ratio (FCR), and as the name implies simply refers to the kg of feed required to put one kg liveweight gain on an animal. FCR is useful for considering efficiency of cattle during growth and finishing, and is especially relevant to the feedlot where only growing animals are fed. FCR is also referred to as Gross Feed Efficiency, because it is a gross measure and does not attempt to break down feed requirements into sub-components of maintenance and gain. For this reason, FCR is not very useful for considering feed efficiency in the breeding herd, where females are not growing.

The second useful definition of feed efficiency is that of Net Feed Intake (NFI). Net feed intake refers to the variation in feed intake which remains after the requirements for maintenance and growth are accounted for. It is calculated as the actual feed consumed minus the feed intake which the animal was expected to eat based on its size and growth rate. Because an efficient animal is one which eats less feed compared to it's body size and growth rate, efficient animals have a negative NFI while inefficient animals have a positive NFI. An example of the calculation of NFI for two bulls is given in Table 1.

Table 1. Results for two bull calves measured for feed efficiency during a 120-day test at Trangie.

Trait	High Efficiency	Low Efficiency
Start weight (kg)	398	386
Growth rate (kg/day)	1.54	1.54
Expected feed intake (kg)	1668	1639
Actual feed intake (kg)	1585	1881
Net feed intake (kg)	-82	+242
Difference in feed cost = $65 over 120 days		

For the purpose of making genetic comparisons of feed efficiency between animals, it is preferable to use NFI rather than FCR. This is because FCR is highly correlated with growth rate, and so higher growth animals will tend to be more efficient. However, higher growth animals also tend to have larger mature size, and so if we selected on the basis of FCR we would increase cow size and cow feed requirements. Thus while we would have very efficient animals in the feedlot, the breeding sector would pay the penalty in terms of reduced cow numbers carried per hectare. Similar changes could be achieved by simply selecting for growth rate.

On the other hand, NFI is independent of the component traits, growth rate and bodyweight, so selecting for NFI will produce little change in growth and mature size, while feed intake will decrease. Of course, in practice we may select for both NFI and growth, and improve both traits simultaneously. Selecting a high growth bull with good (negative) NFI will produce animals with superior FCR as well. However, the advantage of NFI over FCR is that it allows different breeders to place different emphasis on growth and feed efficiency. NFI also has much better statistical properties than FCR, making the use of NFI for calculating EBVs much more desirable.

Measuring feed efficiency

Feed efficiency can be measured either on young bulls (seedstock test) as done at Trangie, or on steer progeny of sires in feedlots (commercial feedlot test) as done by the Cattle and Beef CRC. Either way, the principles of measurement are similar. Animals are put in front of automated feeding machines which allow animals *ad libitum* access to feed, and the feed intake of the animal is recorded. Manual feeding systems are also acceptable, but are more labour intensive. The animals should be allowed 21 days to adjust to the ration and feeding system prior to the commencement of the test. Initial tests were of a duration of 120 days, but analysis of data generated indicate that tests can be reduced to 70 days without loss of accuracy. Current guidelines require a minimum 70 day test. During the test the animals should be weighed at least every fortnight to allow an accurate description of growth during the test. The data collected can then be processed to calculate NFI (or FCR) of the animal.

For industry implementation of feed efficiency testing, a set of guidelines have been produced describing how the test should be conducted. These guidelines are designed to ensure that comparisons are made using a standard test, and that the data should be acceptable for later inclusion into BREEDPLAN EBVs

Can we select for feed efficiency ?

Research by NSW Agriculture at Trangie, and by the Beef CRC have shown that there is genetic variation in feed efficiency in the Australian cattle population. At Trangie, young bulls and heifers from Angus, Hereford, Poll Hereford and Shorthorn breeds were measured for NFI. Substantial variation between individuals was found, with the best animal eating over 550 kg less feed (over a 120 day test) than the worst animal when compared at the same level of growth performance. The heritability of NFI is calculated to be 0.39, which means that approximately 40% of the difference between animals is genetic, and can be passed from parents to progeny. This level of heritability is similar to that of growth rate, and considerably higher than FCR (0.29), indicating that improvement in NFI by selection is possible and likely to be of benefit.

Selection for NFI has also been demonstrated to work in practice. Four groups of steer progeny of high efficiency and low efficiency parents following a single generation of selection were backgrounded on pasture from weaning to commercial feedlot entry weights, then fed in the CRC "Tullimba" feedlot. Individual feed intake, growth and efficiency were measured and recorded. Feeding was for 70 days (two groups) and 90 days (two groups) to achieve local supermarket and light export market endpoint's respectively. Results for the average daily performance and the cost of feed required to gain 100 kg liveweight for the four groups is presented in table 2.

Steer progeny of high efficiency parents grew 5% and were 3% heavier prior to slaughter than progeny of low efficiency parents. The steers from high efficiency parents consumed 3% less per day, and because they also had a slightly higher daily gain, had an 8% superior feed conversion ratio than the steers from low efficiency parents. To gain 100 kg liveweight in the feedlot, the progeny of high efficiency parents required $19.20 less feed, that is, were 8% cheaper to feed than the progeny of low efficiency parents.

Table 2. Average feedlot performance following a single generation of selection for Net Feed Intake

Trait	High-efficiency parents	Low-efficiency parents	High *v* Low efficiency
Average daily gain (kg)	1.39	1.32	+5%
Final liveweight (kg)	462	450	+3%
Average daily feed intake (kg fresh wt.)	11.1	11.4	-3%
Feed conversion ratio (kg feed/kg gain)	8.0	8.6	-8%
Cost of feed to gain 100kg	$240	$259	-8%

What are the consequences of selection for feed efficiency?
Following postweaning testing each year, females were allocated to either the High efficiency line, or the Low efficiency line, based solely on their individual NFI values. The High efficiency line were joined to the highest efficiency bulls tested each year, and the Low efficiency line were joined to the lowest efficiency bulls each year, to create divergent selection lines for NFI.

Differences between animals in the High and Low selection lines after two generations support the original theories that NFI is independent of liveweight and growth. **The average difference in NFI between animals in each line was 1.25 kg per day.** There was no significant difference between the lines in either yearling weight or average daily gain. There were however differences with feed intake, feed conversion ratio and fat depth, as shown in table 3.

Of possible concern to some sectors of the industry is the relationship between NFI and fat depth, with more efficient animals tending to be leaner. It should be emphasised that the relationship is not strong, and there is ample scope to select animals which are superior for NFI and also meet fat requirements for most markets.

Table 3. Performance of progeny of high NFI and low NFI bulls and heifers following two generations of selection.

Trait	High-efficiency progeny	Low-efficiency progeny	Difference is significant
Yearling weight (kg)	384.3	380.7	No
Average daily gain (kg/day)	1.443	1.400	No
Actual feed intake (kg)	9.4	10.6	Yes
Net feed intake (kg/day)	-0.540	+0.707	Yes
Feed conversion ratio	6.6	7.8	Yes
Rump (P8) fat depth (mm)	6.7	8.0	Yes

The consequences of selection for feed efficiency on other traits are the subject of on-going research or further analysis. The current evidence suggests that NFI is unrelated to scrotal circumference (an indicator of fertility), and eye-muscle area (an indicator of muscularity).

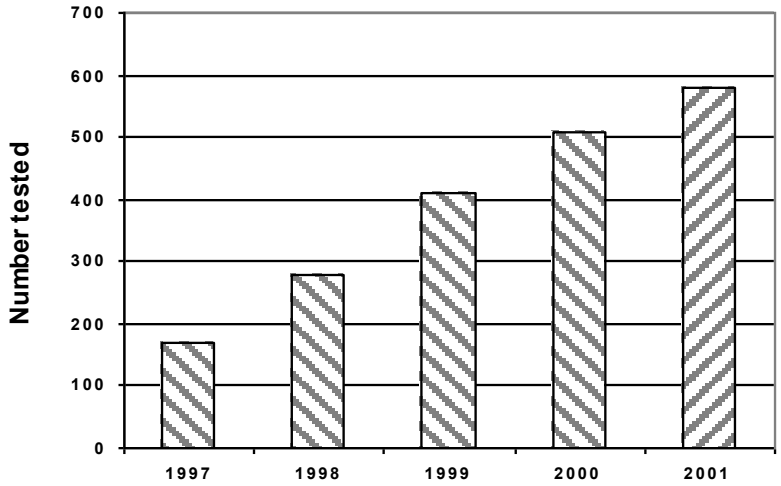
Preliminary evidence has suggested that there may be an antagonistic relationship between feed efficiency of steers and marbling ability. However, the strength of this relationship is still under investigation at this stage.

How will producers implement selection to improve feed efficiency ?
Information on feed intake and efficiency will form the basis of a new BREEDPLAN EBV for NFI which is currently being developed. This EBV will be able to be used in exactly the same way that other BREEDPLAN EBVs are currently used; firstly as a selection tool to assist seedstock breeders to make selection decisions within their herds, and secondly as a description of the genetics of bulls offered for sale to commercial breeders. Commercial beef producers wishing to place emphasis on improving efficiency within their herd will be able to consider the EBV for NFI along with the EBVs for other traits when purchasing bulls.

The facility to include NFI information into the BREEDOBJECT software will also be developed. BREEDOBJECT provides the capability to describe the genetic merit of the animal within a given production system and market in terms of a single $ index value. Thus seedstock breeders and commercial producers will be better able to interpret the information provided by BREEDPLAN, and to achieve the optimum balance between selecting for different traits, including NFI.

In order to ensure the availability to the commercial industry of improved genetics for NFI, the seedstock sector must implement a practical and economic testing program. This will be facilitated by the commercial development of semi- and fully-automatic testing units, such as the Beef and cattle CRC "Tullimba" unit that is currently being manufactured under licence by Ruddweigh International. Whether testing on-farm or in central tests, data is collected locally then sent to Trangie to be loaded onto a central database, where it is checked for compliance to test requirements, and processed into a summarised form. Reports of results from individual animals are produced and returned to the test station submitting the data.

Figure 1. Number of bulls tested by industry 1997 to 2000, and number expected to be tested in 2001.



Central test stations currently in operation are at PVI Hamilton (Victoria), AVR Rutherglen (Victoria), Vasse (Western Australia), Coota Park (NSW) and CRC "Tullimba" (NSW), when research requirements allow. Seedstock herds currently testing on-farm are High Spa (Angus), Bald Blair (Angus) and Coota Park (Poll Hereford). NSW Agriculture at Trangie, with support from Meat and Livestock Australia, have purchased two Ruddweigh Feed Intake Recorders, and will be conducting a number of on-farm demonstration trials at prominent seedstock herds over the next

three years. The aim of these is to facilitate industry knowledge and understanding of NFI technology, and to improve the genetic linkages across tests to enhance the development and accuracy of EBVs. Numbers of bulls tested by industry each year, and those expected to be tested this year are shown in figure 1.

Benefits from selecting for NFI

Selection for improved NFI will reduce the feed requirements of progeny for slaughter, and that of the heifers that enter the cow herd without compromising growth, but unlike feed conversion ratio, the traditional measure of feed efficiency, without increasing cow size. Therefore, the benefits from buying superior efficiency-tested bulls should be two-fold:

- Firstly, progeny that require less feed without compromise in growth.
- Secondly, as genes for superior feed efficiency spread through the herd, it should be possible to run more cows and calves on the same area of pasture and with the same inputs of supplementary feed as previously required for the "unimproved" herd.

Benefits to the commercial operation

The economic benefit following the decision to buy superior efficiency-tested bulls was examined by looking at the change in cashflow over 25 years for a base herd of 100 British-breed cows. The initial change in cashflow was calculated for a commercial enterprise turning off 18 month-old grass fed steers and heifers. The cashflow was then augmented by assuming 80% of steers were sold for feedlot finishing and subsequent sale as heavy export steers. The assumptions used in this example are based on seedstock producers adopting a “two-stage” selection process, where sires are originally selected on weaning information, then the top proportion tested for NFI.

These assumptions were:

- a superior efficiency-tested bull could cost $140 more than the $2500 usually paid for a replacement bull.
- as the cow herd became more efficient over time, more cows and calves could be run on the same area.
- over years as steer progeny became more efficient there would be a saving in cost of feed fed, and if sold as feeder steers, half the value of feed saved would be paid by the feedlot to the producer as a premium.

The benefits from investing in genetic improvement in efficiency of calves and in the cow herd accrue slowly but are cumulative. In the initial years surplus cashflow for the cow/calf enterprise was slightly reduced, as consequence of the initial purchase cost of the superior efficiency-tested bulls. However, over the life of the investment period (25 years) the internal rate of return was a healthy 45% and the net present value of surplus income over expenses was $17,562. If 80% of steers were sold for feedlot finishing and a premium paid for them equal to half the cost of feed saved by the feedlot operator, the net present value of surplus income for the combined cow/calf and feeder steer operation was $22,106. That is, $4,544 more than the cow/calf operation alone, and giving a combined internal rate of return of 65% .

Testing a proportion of bulls, selected based on relevant information available at weaning, is theoretically profitable on an industry wide basis, for most production systems, and including most markets, both grass-fed and grain-finished. Commercial breeders should, over a reasonable period of time, be able to achieve economic benefits from incorporating NFI in their breeding criteria. It is not surprising, however, that the greatest potential benefits are available to those breeders targeting the markets where feed costs are greatest, such as the high quality Japanese grain-fed markets. Initial selection of suitable bulls to meet the strict requirements for these markets is essential, and cannot be overlooked when including NFI in breeding programs.

Practical Advantages and Pitfalls When Performance Testing with Special Reference to Feed Conversion Under South African Conditions

Kenny Crampton, Breed Director, South African Angus Society

1. Background of South African Performance Testing Procedure

South Africa started Phase C Performance testing in 1963. The first test station at Irene, initially had individual pens for each bull that were hand operated for "time restricted" ad-lib feeding and could accommodate only 180 bulls per annum. Phase D Performance Testing was started in 1971 with a minimum of 15 bulls per test. This was later decreased to 10 bulls per test.

1.1 Type of Tests

1.1.1 Phase C Tests

- These tests are done at central test stations and measure gain and feed efficiency.
- There are 5 government stations and 5 private stations spread over the whole country.
- Over 34 000 bulls have been tested since 1963 with an annual capacity of 3 540.
- The duration of the tests have been shortened – 140 days up until 1991
  112 days up until 1998.
  84 days from 1999.
- Heifers were tested for the first time in 1999 – 180 were tested.
- Here they also measured feed efficiency. –
  F.C.R (Feed conversion rate) for the heifers was 10% poorer than the bulls.
  F.I. (Feed intake) for the heifers was 3% poorer than the bulls.
- They did these tests to check the effect of feed efficiency on total production of the females. These tests are still in progress.

1.1.2 Phase D Tests

- These tests are done on the farm and measure gain and feed efficiency using the Kleiber Ratio.
- Over 150 000 bulls have been tested since 1971 with approximately 10 000 bulls being tested per annum currently.
- Feeding procedures can range from normal grazing to semi-intensive or intensive.
- The length of the test period ranges from 84 to 270 days.

1.2 Bull Testing Results

- Great progress has been made in improving both gain (ADG) and feed efficiency (FCR) of South African cattle as a result of performance testing.

Eg Angus Breed		Year	ADG(g)	FCR
		1980	1406	7.14
		1998	1739	6.61
	Change	18 years	+ 24%	+ 8%

84 Day Test		Year	ADG (g)	FCR
		1999	1998	5.95
	Change		+ 41%	+ 17%

- Research has shown that Average Daily Gain (ADG) initially improves over the test period and then deteriorates slightly. Feed Conversion Rate (FCR) deteriorates as the period of testing increases due to more maintenance feed being required and a higher proportion of fat being gained by the animal.

Eg Bonsmara Breed

Days on Test	0 – 28	29 – 56	57 – 84	85 - 112
ADG	1542	1637	1543	1446
FCR	5.81	6.21	6.98	7.64

- The length of the feed efficiency test should ideally mirror commercial conditions.
- The South African cattle industry requires approximately 30 000 new bulls annually and approximately 15 000 performance selected bulls enter the industry annually. These bulls will ensure genetic improvement.

2. Pitfalls

2.1 High Costs

- The costs of maintaining the facilities needed to run these tests are high with this cost being passed down to the breeder. This in turn pushes up his cost causing fewer bulls to be tested. This is one of the reasons why Phase D testing has grown in popularity at the expense of Phase C testing.
- Feed costs have also risen, adding to the problem.

2.2 Laminitis (excessive hoof growth)

- A number of defects such as laminitis, swollen joints, rumen disorders and liver abbesses are caused by the intensive manner in which the tests are carried out.
- These are due to either the high-energy ration or the cement areas on which they stand.
- These problems either cause deaths or withdrawals from the tests.

2.3 Fat Deposition

- Ongoing research has shown that the feeding of high-energy diets to young bulls can have a detrimental effect on their reproductive capacity.
- This is because of an excess amount of fat being laid down in the neck of the scrotum.
- When tested there was an increase of abnormal spermatozoa probably related to the smaller body – testicular temperature difference because of the excess fat.

3. Advantages

3.1 Profit

3.1.1 Feed Costs

- In terms of the gross value of agricultural production in South Africa, slaughter cattle are, after slaughtered poultry, the largest livestock production industry in the country.
- Feedlots play a major role in the supply of beef.
- In excess of 60% of all South African beef is feedlotted. The South African feedlot industry is one of the biggest in the world.
- 70% of the costs to feed cattle in the feedlot are feed costs. At any given feeder the biological efficiency of a feedlot operation will depend on the efficiency of feed conversion which in turn is dependent on the consumption and the rate of gain of body mass (actually carcass mass).
- The profitability of a feedlot operation changes by approximately R25.00 (~ A$6) per animal marketed for every 0.5 unit change in feed conversion rate.

3.1.2 Maintenance

- 55% of the available food (grass) on your farm is needed for the maintenance of the animals. That leaves only 45% for reproduction and production, which are both of cardinal importance to keep the producer in business.
- So, the more efficiently the available food can be used, the more profitable the enterprise will be.
- Thus efficiency of feed conversion (with a 35% heritability) is therefore of primary importance in beef herds.
- Trials done in South Africa have shown that feed conversion rate is three times more important than average daily gain from an economic point of view.

TRAIT	FCR	ADG (kg)	FAT %
Profit	- 0.79	0.25	- 0.13
FCR	-	- 0.58	0.17
ADG	-	-	- 0.17

- For the South African market place the following balance may be optimum:
  3 X (FCR Index) + 1 X (ADG Index) / 4.

- Some Australian research shows that feed conversion rate to be 6 times more important under extensive conditions and 14 times more important under bad extensive conditions.
- Feed conversion rate has the highest correlation with profit after reproduction.

3.2 Reproduction

- By placing too much emphasis on growth average daily gain when selecting certain problems will arise, eg. higher birth mass.
- The selection for feed conversion rate however, has no negative impact, not even on reproduction.
- Selection for feed conversion rate has lowered birth mass on some occasions.

3.3 Slaughter Percentage

- Research in South Africa has shown that there is a positive correlation between feed conversion rate and body length.
- Body length is positively correlated to slaughter percentage and slaughter percentage has a great influence on profit.

Slaughter Percentage	Average Profit Per Bull
53%	R162.06 (~ A$39)
58.5%	R347.36 (~ A$84)
59.9 %	R394.53 (~ A$95)

- With a 1% increase in slaughter percentage comes an 11% increase in profit.

3.4 Health Aspects

- When selecting for feed efficiency the tendency is towards animals with less fat, which has health advantages with regard to consumers.
- The average South African carcass has between 13% and 16% fat.

3.5 Growth Improvement

- Selecting for feed efficiency will still improve the growth as feed conversion rate is positively correlated with average daily gain.

3.6 Genetic Improvement

- Intensive feedlot conditions identify animals with skeletal and hoof problems, animals that are prone to bloat, rumen disorders and liver abscesses.
- These problems would not have been easily identified under extensive conditions.
- The effect of laminitis and rumen disorders on feed conversion rate and average daily gain have grave implications from an economic point of view.
- Animals with any of these problems will be rejected when screening takes place.

- Under extensive sandy conditions hoof problems will probably have the same tendencies with regard to profit.

3.7 Improved Commercial Value

- The commercial beef producer sees feed efficiency as an important benefit.
- It is being used along with other functional breeding traits such as fertility, calving ease and weaning mass when purchasing a bull.
- With the advent of BLUP figures for average daily gain and feed conversion rate breeders can now use this data to add extra value to the bull's they market.
- Major sales now include this information in their sale catalogues. South African commercial beef producers are being educated in the use of these figures to the benefit of the industry.
- Most feedlots are conducting tests on producer identified groups of animals with regard to their feed efficiency and this has helped with determining the premium the producer will get in future.
- Branded beef programs in conjunction with feedlots are looking to commercial beef producers to use specific sires for combined feedlot / carcass performance.

Summary

Growth tests under intensive, semi-intensive and extensive conditions are extremely valuable. The ideal is to test bulls intensively for a relatively short period in order to evaluate gain (ADG) and feed efficiency (FCR). Pursuing maximum post-weaning growth rate will not provide maximum profit. A balance in the selection process between post-weaning rate, feed conversion ratio and grade will produce the most profitable animals. The selection for feed efficiency should therefore receive more attention from the commercial beef industry.

The Vasse Feed Conversion Efficiency Trial 2001

Alan Lymbery, Division of Veterinary and Biomedical Sciences, Murdoch University

The feed conversion efficiency trial at Vasse has been running since 1996/97. It was initiated, and is largely overseen each year by a committee of representatives from the participating breeds, in conjunction with Frank Coupar, Richard Morris and Leonarda Baizert from Agriculture Western Australia. The Meat Program of Agriculture Western Australia provides logistical support, ensures that the trial is consistent with national guidelines, and organises the data analysis in collaboration with the Division of Veterinary and Biomedical Sciences at Murdoch University.

The trial has grown each year in both number of animals and number of different breeds participating. This year 117 bulls from 8 different breeds were involved. The trial follows national guidelines for feed efficiency testing and the data that are collected are provided to the Agricultural Business Research Institute to assist in the development of BREEDPLAN estimated breeding values for feed efficiency.

The trial is open to any breeder, although preference is given to those who organise their entries through a breed society. We try to maintain a minimum of 4 bulls per breeder. This provides a contemporary group to ensure that comparisons are made between animals that have been treated alike, both for traits measured before and during the trial, and for other traits measured after the trial (e.g. 400 and 600 day weight).

Within any one breed, the bulls must be born over a 3 month period, and weaned before arriving at Vasse Research Station in mid-November. The bulls spend about 2 months on pasture at Vasse, to provide a common background, and enter feedlot pens in early January to acclimatise to a 40% hay/60% grain ration (approximately 10MJ/kg energy content and 14% crude protein). Depending on the number of bulls, some are penned individually and some are penned in a group with access to an automatic feed intake recorder. Experiments at Vasse have shown that use of feed intake recorders provides feed intake data of equal quality to that provided by individually penning animals and hand weighing the feed they consume.

After 3 weeks adjustment to the ration, the bulls begin a 10 week trial, during which liveweight is measured every second week and feed intake is measured daily. At the end of the trial, the liveweight and feed intake data are used to calculate feed conversion ratio (FCR) and net feed intake (NFI).

The ultimate aim of feed efficiency research in Australia is to produce BREEDPLAN estimated breeding values (EBVs) for NFI. The volume of net feed intake data available in Australia at the moment is not adequate for calculation of EBVs. However as more data are generated, from trials like that at Vasse, this will be possible. As with other traits of economic importance in beef cattle, when EBVs become available for NFI, they should be used together with EBVs for other traits in a selection index to obtain optimum overall genetic improvement. Until EBVs for NFI are available, the best way to utilise the data is in a two stage selection process. That is, bulls should be selected first on the basis of other traits which are important to the breeding program (e.g. EBVs for growth rate, fertility or meat quality), and then NFI data used to differentiate among these bulls that already fulfil other requirements of the breeding program.

Interpreting the results tables

First weight	The liveweight of the bull in kilograms at the start of the test period.
Last weight	The liveweight of the bull in kilograms at the end of the test period.
Gain	This is the average liveweight gain in kilograms per day over the test period. It is calculated using all of the bulls weights which are taken every 14 days. This results in a more reliable estimate than subtracting the first weight from the last weight.
Total Feed	The total amount of feed in kilograms the bull ate over 70 days. The diet consisted of hay (38%), oats (51%), lupins (10%) with a metabolisable energy content of 10 mj/kg DM and 14% crude protein.
Feed conversion ratio	The amount of feed required by the bull in kilograms to increase it's liveweight by one kilogram. The smaller the number the more feed efficient the bull.
Net feed intake	The difference between the bulls actual feed intake during the test period and it's expected feed intake based on live weight and growth rate. Direct comparisons between bulls are only valid within a breed and management group. A bull that eats less than expected will have an NFI less than zero, and a bull that eats more than expected will be greater than zero. As for FCR, the smaller the number the more feed efficient the bull.
Cost Difference	The relative savings *or* extra cost of feeding the bull for 3 months based on it's net feed intake. For example, a bull with an NFI of 1.1 consumes additional feed worth $24.75 over 3 months. A bull with a NFI of -1.3 would eat $29.25 less feed than expected. This assumes a feed cost of $250 per tonne.

Blonde d'Aquitaine Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
38		COROLIN VAN GOGH	LIAHN POLL CAT 31C ICN PN 0031	ENCOUNTER N BEAUTY ENC DK0058	
42		COROLIN VLADIMIR	HEYTESBURY TONNERE HPG PT0805	ENCOUNTER MIGNON ENC P M0041	
41		COROLIN VISCOUNT	ENCOUNTER NICHOLAS ENC PN0004	ENCOUNTER PATRICIA ENC PP0060	
43	AMR PV019	AMAROO V-BELT	HEYTESBURY TALISMAN HPG PT0040	HEYSTESBURY SARAH HPG P S0702	YOUNG RIVER HENRI
44	AMR PV021	AMAROO VALOUR	ENCOUNTER VINCE PRINCE ENC PH0020	ENCOUNTER QUERCUS ENC PQ0028	ENCOUNTER LEADER
40		COROLIN VICE REGENT	ENCOUNTER NICHOLAS ENC PN0004	YOUNG RIVER HOLY YRO PD0414	
39		COROLIN VANDENBERG	ENCOUNTER NICHOLAS ENC PN0004	HEYSTESBURY SHERATON HPG P50747	

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
38	V 04	Schnieder	28-Apr-00	365	495	651	2.0	4.6	-1.3	-$29.25
42	V 18	Schnieder	26-May-00	321	443	609	1.8	4.7	-1.0	-$22.50
41	V 15	Schnieder	20-May-00	354	491	686	1.9	5.1	-0.6	-$13.50
43	V 19	Bergsma	14-Mar-00	347	481	714	1.9	5.3	-0.1	-$2.25
44	V 21	Bergsma	18-Mar-00	378	522	770	2.1	5.3	0.0	$0.00
40	V 14	Schnieder	15-May-00	316	422	686	1.6	6.2	0.6	$13.50
39	V 12	Schnieder	10-May-00	366	512	819	1.9	6.1	1.1	$24.75
Breed Mean				350	481	705	1.9	5.3	-	-

Charolais Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
48		TOKEN VALHALLA	AIRLIE QUORN A15 Q182E	AIRLIE MICHELLE AIS M222F	
45		TOKEN VESUVIUS	RGP EUREKA OAC Q17E	DOWNUNDER SYMPONY ILP S38E	
FIR2	Y1K V7E	LIBERTY VISION AI	KEYS POLLED FUSION 163E	CULHAM AMANDA 11 NIIE	TWOUP BLACK JACK
49		TOKEN VALOUR	ROSEDALE RANGLER MR R65F	GUILLEMOT RAQUEL NWI R12E	
50		TOKEN VICEROY	ROSEDALE RANGLER MR R65E	SERENA PARK LUCY REO Q5E	
FIR2	Y1K V8E	LIBERTY VIAEBE AI	COAT LEZARD	CULHAM NADIR K14E	MANDALONG JOSEPH
47		TOKEN VALESQUEZ	AIRLIE QUOYN AIS Q182E	SANTEZ QUID 7XS Q15E	
FIR2	1LP.V38E	DOWNUNDER VIRILE	DOWNUNDER RED SKIN 1LP.R56E	DOWNUNDER STOCKADE 1LP.S19E	
46		TOKEN VALENTINO	CULHAM NOBELPRIZE CUL N51D	DOWNUNDER PLAY N TELL ILP P72E	
FIR2	Y1K V5E	LIBERTY VIKING AI	BCR POLLED UNLIMITED	CULHAM LOLLY L1D	MELPLASH GASTRONOME G2F
FIR2	1LP.V19F	DOWNUNDER VICHY	DOWNUNDER KIAH 1LP.K5F	KERSKNOWE FESTIVAL	
FIR2	TW7 V2E		DOWNUNDER SETTLER ILP S33E		

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
48	V 10E	Lambert	12-Apr-00	325	425	595	1.5	5.6	-0.7	-$15.75
45	V 3E	Lambert	15-Mar-00	303	414	588	1.6	5.1	-0.7	-$15.75
FIR2	V 7E	Yost	19-Mar-00	367	534	742	2.0	5.2	-0.4	-$9.00
49	V 12E	Lambert	19-Apr-00	323	490	735	2.3	4.5	-0.1	-$2.25
50	V 17E	Lambert	31-May-00	287	440	686	2.2	4.4	0.0	$0.00
FIR2	V 8E	Yost	20-Mar-00	380	576	826	2.3	5	0.1	$2.25
47	V 8E	Lambert	8-Apr-00	304	416	644	1.7	5.4	0.1	$2.25
FIR2	V 38E	Rob.Park	27-Apr-00	388	542	819	2.0	5.9	0.6	$13.50
46	V 5E	Lambert	3-Apr-00	345	494	791	2.1	5.3	0.7	$15.75
FIR2	V 5E	Yost	16-Mar-00	451	618	896	1.8	7	0.8	$18.00
FIR2	V 19F	Rob.Park	28-Mar-00	385	558	868	2.1	5.9	1.0	$22.50
FIR2	V 4E	Ferguson	19-Apr-00	431	580	896	1.7	7.4	1.3	$29.25
Breed Mean				357	507	757	1.9	5.6	-	-

Limousin Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
55	WLPPV51		WL SIRE POWER WLPS45	WLPT74	WL QUALITY CONTROL
61	CFFV0573	COOLBEENIE VIRILE	DAUPHIN IMFFH4715	COOLBEENIE KIRI CFFK0573	
68	TJGP V144	PALMDALE NELSON	PALMDALE LOFTY TJGP T33	TJGP R5	REFSTRUP TABIAS
57	WLPV87		WL QUESTIONABLE DOUBT WLPQ46	WLPT74	WL RAWHINDE
70	TJGP V43	PALMDALE NIMBUS	PALMDALE KARUSO TJGP S23	TJGP R46	RIF EROS
63	TJGP V59	PALMDALE NERO	PALMDALE JULIUS TJGPR2	MIDNIGHT M5	WLCC NO SUBSTITUTE
69	TJGP V149	PALMDALE NICHOLAS	PALMDALE HILTON TJGP P18	WHITE LAKES Q61	BROADMEADOWS TOMBOLA
60	CFFV0205	COOLBEENIE VICTOIRE	GEANT IMFFL0217	COOLBEENIE QUALITE CFFQ 0205	
58	CFFV0004	COOLBEENIE VULCAIN	COOLBEENIE SPLENDIDE CFFS0025	COOLBEENIE LOUVE CFFL0004	
65	TJGP V80	PALMDALE NOAH	PALMDALE KARUSO TJGP S20	TJGP M39	WLCC NO SUBSTTUTE
51	AMRP V0014	AMAROO VATICAN	DAUPHIN IMFFH4715	AMAROO MISTY AMR P M0006	HOMESTATION MONOPOLE HSP E0562
64	TJGP V76	PALMDALE NIFTY	PALMDALE HILTON TJGP P18	TJGP Q35	MIDNIGHT POLLED PROFIT
62	TJGP V17	PALMDALE NEHRU	PALMDALE KARUSO TJGP S23	TJGP R47	WLCC NO SUBSTITUTE
71	TJGP V154	PALMDALE NIKITA	PALMDALE HILTON TJGP P18	WD L78	VERBEEK POLL CHALLENGER
59	CFFV0111	COOLBEENIE VALEUR	COOLBEENIE SPLENDIDE CFFS0025	COOLBEENIE LOUISE CFFL0111	
52	AMRP V0011	AMAROO VENTURE	HARRIS IMFF M4759	PALMDALE ILGA TJG P Q0067	MIDNIGHT POLLED PROFIT
66	TJGP V124	PALMDALE NED	PALMDALE HILTON TJGP P18	TJGP R7	REFSTRUP TABIAS
53	WLPV5		WL SIRE POWER WLPS45	WLPS78	WL JAZZMAN
67	TJGP V8	PALMDALE NIKE	PALMDALE KASPER TJGP S8	TJGP S80	MIDNIGHT POLLED PROFIT
56	WLPV73		WL NO QUESTION WLPQ11	WLPP42	TEXS RANGER PRIMO
54	WLPV14		WL SIRE POWER WLPS45	WLPR31	WULF'S CHOICE

Limousin Feed Efficiency Results *continued*

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
55	V 51	Williams	25-Mar-00	404	556	763	2.3	4.8	-0.8	-$18.00
61	V 573	Dibble	26-May-00	227	327	483	1.5	4.7	-0.6	-$13.50
68	V 144	Tomlinson	25-Mar-00	422	572	798	2.3	5	-0.6	-$13.50
57	V 87	Williams	18-Apr-00	332	471	679	2.1	4.6	-0.6	-$13.50
70	V 43	Tomlinson	21-Feb-00	381	498	693	1.7	5.8	-0.5	-$11.25
63	V 59	Tomlinson	25-Feb-00	403	526	735	1.9	5.6	-0.5	-$11.25
69	V 149	Tomlinson	28-Mar-00	343	488	700	2.1	4.9	-0.4	-$9.00
60	V 205	Dibble	15-May-00	355	478	679	1.8	5.5	-0.4	-$9.00
58	V 4	Dibble	21-Mar-00	309	447	665	2.0	4.7	-0.3	-$6.75
65	V 80	Tomlinson	12-Mar-00	389	484	693	1.5	6.8	-0.2	-$4.50
51	V 14	Bergsma	11-Mar-01	403	516	742	1.7	6.1	-0.2	-$4.50
64	V 76	Tomlinson	5-Mar-00	390	504	742	1.6	6.5	0.2	$4.50
62	V 17	Tomlinson	10-Feb-00	410	556	812	2.0	5.8	0.2	$4.50
71	V 154	Tomlinson	31-Mar-00	372	497	756	1.7	6.2	0.4	$9.00
59	V 111	Dibble	23-Mar-00	225	353	602	1.9	4.6	0.5	$11.25
52	V 11	Bergsma	12-Mar-01	365	495	777	1.9	5.7	0.6	$13.50
66	V 124	Tomlinson	18-Mar-00	436	570	861	1.9	6.6	0.7	$15.75
53	V 5	Williams	7-Mar-00	391	520	819	1.9	6	0.8	$18.00
67	V 8	Tomlinson	4-Feb-00	489	632	945	2.1	6.5	0.8	$18.00
56	V 73	Williams	16-Apr-00	323	450	742	1.9	5.7	0.9	$20.25
54	V 14	Williams	12-Mar-00	386	448	742	1.1	9.5	1.2	$27.00
Breed Mean				369	495	735	1.9	5.8	-	-

Murray Grey Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
93			MONTEREY STARLIGHT	MONTEREY GEMSTONE S22	
86	PIE V31	TULLIBARDINE VITAMIRE	MONTEREY MOONRISE	TULLIBARDINE LOTTIE	
FIR1	JOS V15		MONTEREY SHILOH GJB 092	BUNDALEER ROWAN R27 JOS R27	BUNDALEER PROPHET
87			MATAI WATERLOO	MONTEREY ANNABELLE Q58	
FIR1			MONTEREY STAR CHIEF	BUNDALEER OPAL P27	
FIR1	JOS V1		BUNDALEER PAYDAY P43 JOS P43	BUNDALEER OPAL R144	MONTEREY STAR CHIEF
84			MONTEREY FINESSE	MONTEREY ANNABELLE K37	
FIR1	4FJ	TOKEN VIGOUR	MELALEUCA SUPER TED MCA S6	STRNDHEIM PRIMROSE 7FO P29	
FIR1	JOS V9		MONTEREY SHILOH GJB Q92	BUNDALEER DAVINA Q48 JOS Q48	BUNDALEER MAX
FIR1	PIE V23	TULLIBARDINE VELOCITY	ORCADIA PARK TYCOON	TULLIBARDINE LAURA N30L	
82			O P CENTURY	MONTEREY MAGNOLIA Q63	
81	PIE V20	TULLIBARDINE VESTMENT	SPRINGWELL NUCLEUS	TULLIBARDINE OPALS GIRL Q20	
24	MCA V50	MELALEUCA VICE CHANCELOR	HIGHWOOD AMBASSADOR	SPRINGWELL PASTRY N167	
100		ERROL FLYNN	MONTEREY TYCOON	BL.ANTIONETTE	BRANTWOOD BORN BLOWER
96	MCA V158	MELALEUCA VETO	MELALEUCA TEAMSTER T14	SPRINGWELL PETAL N36	
94		ELMO	YOLGERUP DEBRETT	BL.YOORALLA	MUNGATTA SIROCCO
79	PIE V16	TULLIBARDINE VICTOR	MONTEREY STAR CHIEF GJBN25	TULLIBARDINE PALATHINE	
77		TOKEN VOLVO	MONTEREY STAR CHIEF GJB N25	KOOJAN HILL ROWAN KHP15	
85	MCA V68	MELALEUCA VOLATILE	MONTEREY STARSHINE	SPRINGWELL ARDITH P137	
99		TOKEN VALIANT	MONTEREY STAR CHIEF GJB N25	BUNDALEE OPAL JOS L25	
90			MATAI WATERLOO	MONTEREY SHOWTIME Q56	
97		EDISON	YOLGERUP DEBRETT	BL.WILLA	MUNGATTA SIROCCO
89		EDDY	MONTEREY TYCOON	BL.AMILEA	MUNGATTA SIROCCO
FIR1	PIE V15	TULLIBARDINE VISA	TULLIBARDINE DIPLOMAT P25	TULLIBARDINE BELINDA	
91	PIE V40	TULLIBARDINE VEGEMITE	ORCADIA PARK TYCOON	TULLIBARDINE QUID	
FIR1		EMANUELLE	ONDIONG BONZA	BL.WENDA	MUNGATTA SIROCCO
88			BUNDALEER PROPHET	MONTEREY SHOWGIRL 8TH	
95	MCA V157	MELALEUCA VENTURER	MELALEUCA TEAMSTER T14	SPRINGWELL MAZURKA R182	
FIR1		ERNIE	MONTEREY TYCOON	BL.BECCIE	HOLYWOOD SOVEREIGN
98			MONTEREY SHILOH	MONTEREY SHOWTIME S8	
28		ECLIPSE	MONTEREY TYCOON	BL.ASH	BRANTWOOD BORN BLOWER
74	MCA V11	MELALEUCA VOLCANO	HERMITAGE BETTER CANNA BE	SPRINGWELL CARMING Q155	
75	MAC V16	MELALEUCA VICORY	HERMITAGE BETTER CANNA BE	SPRINGWELL ANN N34	
92		EADOIN	MONTEREY TYCOON	BL.ASTRID R109	BLACKWOOD PLAYBOY

Murray Grey Feed Efficiency Results *continued*

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
93	V 35	Buller	5-Apr-00	388	492	658	1.5	6.1	-1.8	-$40.50
86	V 31	Murray	22-Mar-00	425	539	735	1.8	5.9	-1.6	-$36.00
FIR1	V 15	Owen	15-Jul-00	347	452	630	1.4	6.7	-1.3	-$29.25
87	V 20	Buller	22-Mar-00	420	550	784	1.9	5.9	-1.0	-$22.50
FIR1	V 74	Buller	7-May-00	442	558	798	1.6	7	-0.8	-$18.00
FIR1	V 1	Owen	13-May-00	350	479	714	1.7	6.2	-0.6	-$13.50
84	V 19	Buller	18-Mar-00	378	480	735	1.6	6.6	-0.5	-$11.25
FIR1	V 11	Lambert	3-May-00	319	452	679	1.5	6.5	-0.5	-$11.25
FIR1	V 9	Owen	20-Jun-00	285	432	665	1.8	5.4	-0.4	-$9.00
FIR1	V 23	Murray	16-Mar-00	402	514	770	1.3	8.8	-0.3	-$6.75
82	V 12	Buller	15-Mar-00	460	569	875	1.7	7.3	-0.1	-$2.25
81	V 20	Murray	15-Mar-00	472	610	931	2.0	6.6	0.1	$2.25
24	V 50	Metcalfe	16-Mar-00	393	512	812	1.7	6.8	0.1	$2.25
100	V 27	Moore	18-Apr-00	345	449	735	1.5	6.9	0.1	$2.25
96	V 158	Metcalfe	10-Apr-00	392	482	777	1.4	8	0.1	$2.25
94	V 17	Moore	8-Apr-00	347	451	742	1.6	6.7	0.1	$2.25
79	V 16	Murray	14-Mar-00	437	542	847	1.5	8.1	0.1	$2.25
77	V 3	Lambert	9-Mar-00	376	495	798	1.8	6.5	0.1	$2.25
85	V 68	Metcalfe	20-Mar-00	335	450	742	1.6	6.6	0.2	$4.50
99	V 7	Lambert	16-Apr-00	322	424	707	1.4	7.2	0.2	$4.50
90	V 27	Buller	28-Mar-00	411	496	812	1.3	8.9	0.4	$9.00
97	V 20	Moore	11-Apr-00	348	461	770	1.6	6.9	0.4	$9.00
89	V 6	Moore	25-Mar-00	381	504	833	1.9	6.4	0.4	$9.00
FIR1	V 15	Murray	13-Mar-00	423	542	847	1.2	10	0.5	$11.25
91	V 40	Murray	30-Mar-00	383	489	819	1.6	7.5	0.6	$13.50
FIR1	V 48	Moore	25-Apr-00	313	457	770	1.8	6.1	0.6	$13.50
88	V 23	Buller	25-Mar-00	440	556	903	1.7	7.4	0.6	$13.50
95	V 157	Metcalfe	2-Apr-00	351	470	798	1.7	6.7	0.6	$13.50
FIR1	V 72	Moore	7-May-00	333	459	784	1.7	6.7	0.7	$15.75
98	V 38	Buller	13-Apr-00	423	550	910	2.0	6.6	0.7	$15.75
28	V 51	Moore	27-Apr-00	335	454	798	1.8	6.4	0.8	$18.00
74	V 11	Metcalfe	29-Feb-00	416	514	868	1.5	8.4	0.9	$20.25
75	V 16	Metcalfe	2-Mar-00	438	572	952	2.0	6.7	1.0	$22.50
92	V 10	Moore	5-Apr-00	348	468	833	1.7	6.9	1.2	$27.00
Breed Mean				382	498	789	1.6	7.0	-	-

South Devon Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
1	E9RP V13	BAROOGA VALID VISION	TORR DOWN HERMES	BAROOGA QUEEN COMPO E9RPR056	
14	6ALP V201		UNGAVA N144	UNGAVA N38	
11			SD S507	SD GREEN 8	
16	6ALP V111		UNGAVA M183	UNGAVA S10	
15	6ALP V 132		UNGAVA T110	UNGAVA T15	
19	6ALP V114		UNGAVA S111	UNGAVA P67	
21	6ALP V177		UNGAVA M183	UNGAVA T37	
10			SD S507	SD YELLOW 33	
7	E9RP V104	BAROOGA VOLVO	BAROOGA PIP-EM-ALL E9RPP079	BAROOGA QUEEN RAMPOT E9RPN063	
17	6ALP V116		UNGAVA S111	UNGAVA L61	
3	E9RP V028	BAROOGA VICOUNT	PALTARA GENERALJILPG001	BAROOGA MONA VIOLET E9RPN028	
2	E9RP V018	BAROOGA VOY ROGERS	HALZEPHRON PM KENWYN	BAROOGA NEATHA HEN E9RPN095	
31	NY2 VO31 P	GAVENWOOD VO31	GAVENWOOD RO33	GAVENWOOD LOO1	
27	7BLP V114	BELHUSV114	7BL P Q 005	7BL P Q 015	
18	6ALP V119		UNGAVA T127	UNGAVA P67	
13			SD S507	SD GREEN 19	
22		GRACE GLEN VILLAN (POLL)	GRACE GLEN ROMNEY (POLL)	GRACE GLEN ROWELLA 10TH	GRACE GLEN POLL ACE
5	E9RP V075	BAROOGA VINTAGE CROP	BAROOGA RAMPACE E9RPQ027	BAROOGA NEATHA GEN E9RPR020095	
4	E9RP V060	BAROOGA VULCAN	BAROOGA RAMPACE E9RPQ056	GTEE G-HAN E9RPN013	
29	7BLP V116	BELHUSV116	7BL P Q 005	7BL P R 036	
8	E9RP V109	BAROOGA BISMARK	BAROOGA SAFE BET E9RPS031	BAROOGA QUEEN N-PAK E9RPQ020	
20	6ALP V115		UNGAVA S111	UNGAVA P60	
23		GRACE GLEN VAGRANT (POLL)	GRACE GLEN ROMNEY (POLL)	GRACE GLEN MORWENNA 19TH	GRACE GLEN POLL ACE
6	E9RP V068	BAROOGA VIAGRA	BAROOGA GP SCRAG E9RPS021	BAROOGA JOSIE N-PARK E9RPQ024	
25		GRACE GLEN VILLAN (POLL)	GRACE GLEN ROMNEY (POLL)	GRACE GLEN MORWENNA 19TH	GRACE GLEN POLL ACE
30	NY2 VO27 P	GAVENWOOD VO27	GAVENWOOD RO40	GAVENWOOD PO36	

South Devon Feed Efficiency Results *continued*

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
1	Bl 13	Rees	3-Apr-00	390	538	707	2.2	4.7	-1.3	-$29.25
14	201	Mountford	26-Apr-00	364	482	651	1.7	5.5	-0.9	-$20.25
11	Bl 82	Piavanini	26-Feb-00	405	536	749	2.0	5.4	-0.6	-$13.50
16	111	Mountford	28-Mar-00	435	582	812	2.2	5.3	-0.6	-$13.50
15	132	Mountford	23-Apr-00	318	443	630	1.9	4.9	-0.6	-$13.50
19	114	Mountford	7-Apr-00	409	540	756	1.9	5.7	-0.5	-$11.25
21	177	Mountford	12-Apr-00	294	420	616	1.8	4.8	-0.3	-$6.75
10	Bl 95	Piavanini	7-Mar-00	428	562	812	2.0	5.8	-0.2	-$4.50
7	Bl 104	Rees	8-May-00	360	492	721	1.9	5.5	-0.1	-$2.25
17	116	Mountford	9-Apr-00	433	570	833	2.1	5.6	-0.1	-$2.25
3	Bl 28	Rees	12-Mar-00	321	445	665	1.8	5.2	-0.1	-$2.25
2	Bl 18	Rees	12-Mar-00	402	512	749	1.7	6.4	-0.1	-$2.25
31	V 031	Hannay	31-Mar-00	419	562	833	2.2	5.5	0.0	$0.00
27	V 114	Barr Lennard	12-May-00	340	472	721	2.1	5	0.0	$0.00
18	119	Mountford	15-Apr-00	427	574	854	2.2	5.5	0.1	$2.25
13	Bl 97	Piavanini	17-Apr-00	355	479	728	1.9	5.6	0.1	$2.25
22	V 2	Corker	26-Mar-00	344	474	735	2.1	5.1	0.2	$4.50
5	Bl 75	Rees	22-May-00	331	453	700	1.8	5.7	0.3	$6.75
4	Bl 60	Rees	2-May-00	313	438	693	1.9	5.3	0.4	$9.00
29	V 116	Barr Lennard	22-May-00	342	495	784	2.3	4.9	0.4	$9.00
8	Bl 109	Rees	20-May-00	349	490	777	2.1	5.2	0.5	$11.25
20	115	Mountford	9-Apr-00	372	487	763	1.8	6.2	0.5	$11.25
23	V 7	Corker	31-Mar-00	363	510	812	2.3	5.2	0.6	$13.50
6	Bl 68	Rees	12-May-00	359	474	756	1.6	6.6	0.8	$18.00
25	V 8	Corker	31-Mar-00	373	512	819	2.0	5.9	0.9	$20.25
30	V 027	Hannay	26-Mar-00	522	668	1008	2.0	7.1	0.9	$20.25
Breed Mean				376	508	757	2.0	5.5	-	-

Gelbvieh Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
FIR3	KIE PV 041	BRAESIDE VESUVIUS	EBONY LODGE SULTAN	AMAROO NELLIE P46	
FIR3	KIE PV 043	BRAESIDE VENTURA	EBONY LODGE SULTAN	BRAESIDE RITZY	
FIR3		CRYSTAL RIDGE VICTOR	NOROLLE BATON ROUGE	DOUBLE J GOLDEN GIRL	
FIR3		CRYSTAL RIDGE VALIANT	NOROLLE BATON ROUGE	CRYSTAL RIDGE SABRINA R13	
35	RFP PV12	SUMMIT REMUS	LEACHMAN NEW DAY	SUMMIT AURORA	
72	V6P V005	GLENDALE VIRGO STAR	GOLD STAR 4W	DOUBLE BAR ROBIN	
FIR3	V6P V006	GLENDALE VANCE	RETREATE MCDERMOTT	DOUBLE BAR SARAH	
FIR3		DOUBLEBAR VICTA	DOUBLEBAR ROYAL AEBEL	DOUBLEBAR RHONDA	
FIR3		DOUBLEBAR VULCAN	BEAUCHAMP REQUEST	BEAUCHAMP PEARL	

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
FIR3	V 41	Kelly	17-Mar-00	556	698	749	1.7	6.3	-2.5	-$56.25
FIR3	V 43	Kelly	6-Apr-00	552	684	812	1.6	7.5	-1.3	-$29.25
FIR3	V 28	Magini	1-May-00	345	461	588	1.4	5.9	-1.1	-$24.75
FIR3	V 30	Magini	4-May-00	323	454	644	1.5	6.1	-0.2	-$4.50
35	V 12	Pugh	27-Apr-00	372	528	784	2.3	4.9	0.0	$0.00
72	Virgo Star	Vinicombe	27-Apr-00	449	564	819	1.8	6.5	0.1	$2.25
FIR3	Vance	Vinicombe	1-May-00	440	594	840	1.8	6.6	0.3	$6.75
FIR3	Victa	Kitchen	20-Apr-00	425	570	805	1.6	7.2	0.3	$6.75
FIR3	Vulcan	Kitchen	3-Mar-00	460	600	924	1.5	8.6	1.6	$36.00
Breed Mean				436	573	774	1.7	6.6	-	-

Cross Breds Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
33			ANG R80	BB 8 BM/30	
34			ANG R81	BB ROAN	
32			ANG R82	BBXCHAR 506	

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
33	J 44	Fry	14-Apr-00	327	448	637	1.8	5.1	-0.6	-$13.50
34	J 77	Fry	29-May-00	310	437	665	1.8	5.2	0.0	$0.00
32	J 18	Fry	7-Apr-00	390	514	819	1.8	6.4	0.9	$20.25

Murray Grey Cross Breds Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
12			MG GLYN BEVAN	SD RED 50	
37	RFP PV60	SUMMIT GREY	SUMMIT WHIZ	PURE MURRAY GREY	
36	RFP PV61	SUMMIT BLACK	SUMMIT WHIZ	PURE MURRAY GREY	

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
12	Bl 85	Piavanini	15-Apr-00	354	460	679	1.6	5.9	-1.0	-$22.50
37	V 60	Pugh	25-Apr-00	410	546	847	2.0	6	-0.1	-$2.25
36	V 61	Pugh	18-Apr-00	443	548	889	1.7	7.6	0.5	$11.25

Red Angus Cross Breds Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
9			KIMBERLEY PRINCE RED ROB	BAROOGA SD HEAVEN OR BUST	

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
9	Bl 39	Rees	10-Mar-00	367	516	749	2.3	4.7	-1.1	-$24.75
Breed Mean				-	-	-	-	-	-	-

Simmental Feed Efficiency Results

Pen	Identity	Bull Name	Sire	Dam	Sire of Dam
73		BANDEERA VALUE	SIEGFRIED	BANDEERA Q JANLE	

Pen	Tag	Owner	Date of Birth	First Weight (kg)	Last Weight (kg)	Total Feed (kg)	Gain (kg/day)	FCR (kg feed/kg gain)	NFI (kg feed)	Cost difference ($ over 3 months)
73	Value	Kitchen	14-Apr-00	522	672	917	2.2	6	-	-
Breed Mean				-	-	-	-	-	-	-