

**Massey University MeatNZ Angus (MUMZA)
Feed Efficiency Trial**

Welcome to our first newsletter in which we background and bring you up to date information about the Feed Efficiency Trial funded by MeatNZ.

In most beef cattle production systems, researchers have established that 65–85% of total feed intake is required by the breeding cow herd and that half of that total feed intake is required just to maintain cow liveweight. Despite its economic importance farmers in New Zealand do not usually assess the cost of feed for their farming operation. The complimentary roles of beef cattle on sheep farms complicates the economic assessment of efficiency in New Zealand's mixed livestock farming systems.

There are a number of ways of expressing and measuring feed efficiency in beef cattle. Recent Australian, USA and UK research has concentrated on net feed intake (NFI) or residual feed intake as a measure of feed efficiency. Net Feed Intake is defined as, the difference between what an animal eats and what they are expected to eat for its weight and gain when calculations are made from known energy requirements (i.e. the factorial approach). For a given liveweight gain, some animals will eat more than expected, and some less than expected – these latter ones are more efficient in terms of Net Feed Intake.

The usual measure of feed efficiency, feed conversion ratio (FCR), is defined as feed intake divided by liveweight gain. This measure has the disadvantage that it links closely with liveweight gain and hence mature size. Selection for FCR would rapidly increase mature weight. With Net Feed Intake, more efficient cattle can be theoretically found within any desired cattle weight range, and selection for improved NFI will not increase mature size.

If genetic improvement for net feed efficiency is undertaken in New Zealand then it will generate profit when steers are finished for slaughter sooner or at heavier liveweights when slaughtered at the same time, however, greater gains may come from the improvement in NFI when it is applied to beef breeding cows.

Selection for improved NFI needs to be assessed in conjunction with improvement in liveweight gain (for example 600 day weight EBV) and maternal traits (for example 200 day milk EBV).

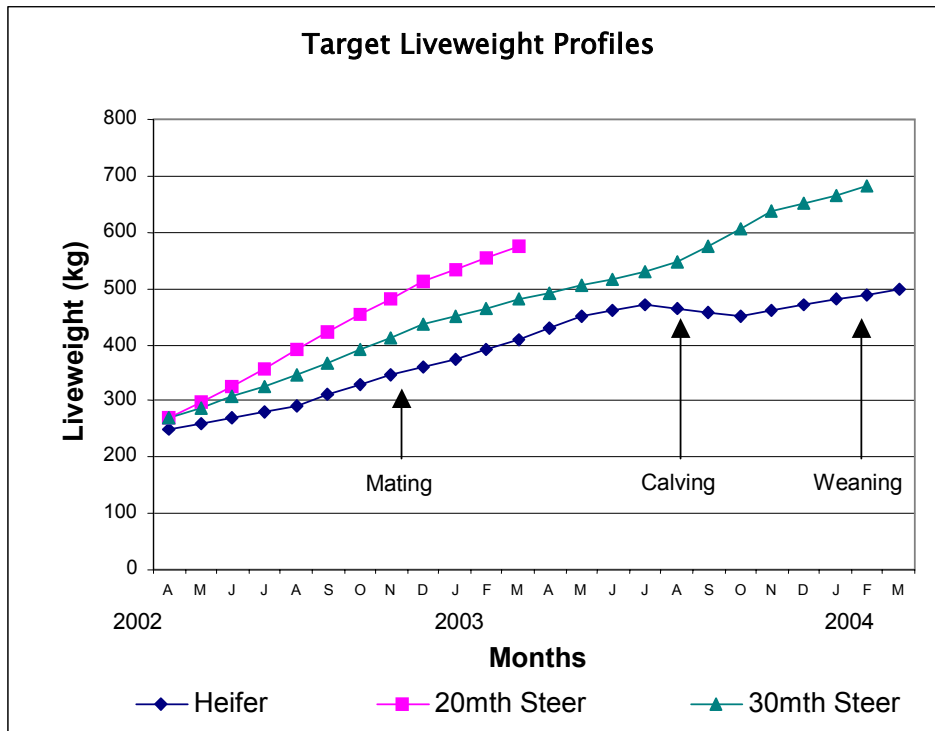
The aim of the Massey University trial is to evaluate selection for Net Feed Intake (NFI) under New Zealand pasture fed conditions. At the same time we are comparing selection for high and low 600 day liveweight EBV and 200 day milk EBV. The trial allows us to make an estimation of the value of using high EBV bulls (i.e. top 10% trait leaders) over commercial cows and then recording the performance of steer and heifer progeny under normal farming conditions.

As most of you are aware we had a delay in obtaining the high and low NFI semen from Australia which resulted in the 2000 matings being just semen from the high and low 600 day and 200 day milk EBV bulls. The 2001 matings contain link bulls from the 2000 mating plus the high and low NFI bulls.

All the steers and heifers were transferred from the four industry farms to Massey University in April/May. The steers arrived at an average liveweight of 255 kg and the heifers weighed 244 kg. The steers have been split into two – one group to be finished at 20 months and the other at 30 months of age.

The heifers are being run together and are being monitored for onset of puberty with tailpainting and weekly blood sampling to assess progesterone levels, an indication of when first oestrus occurs. The first feed intake measurements

were made in late June. The graph below outlines target liveweight gains. Future newsletters will supply further background information e.g. the likely benefits of selection for NFI, and preliminary results from the trial.



Contact Information

Steve Morris
 Institute of Veterinary, Animal & Biomedical Sciences (IVABS)
 College of Sciences (Mail Code 411)
 Massey University
 Private Bag 11-222
 Palmerston North

Phone: 06 350 5329

Fax: 06 350 5616

Email: S.T.Morris@massey.ac.nz