

NET FEED INTAKE

WHY IS NFI IMPORTANT?

- Animals with negative NFI require less feed to produce the same level of production.
- Under pasture systems you can have higher stocking rates but still meet animal requirements for growth.
- It is a moderately heritable trait (39%) which means that progress in improving the trait can be made via selection.

FEED EFFICIENCY IS THE MOST IMPORTANT PRODUCTION TRAIT

Breedplan has adopted the Feed Efficiency measure, NET FEED INTAKE(NFI) and in simple terms, this is the amount of actual feed an animal eats on a daily basis, under or over, what is expected for its weight and gain. This measure has the important benefit of being independent of the animal's weight and gain.

With NFI, more efficient cattle can be found within any desired cattle range and selection will not increase mature size.

Reporting Net Feed Intake EBV's...

NFI EBV's are reported as kg of feed eaten per day. Like most EBV's they can be + or - relative to the breed average. The more negative the NFI EBV, the less feed eaten and the more efficient the animal. An animal that eats more than expected will have a positive EBV.

How is NFI measured...

The initial measurements were based on measuring individual animal feed intakes and weight gains. In 2004, researchers at AGBU found a positive relationship between Insulin-like Growth Factor (IGF-1) and NFI. IGF-1 is a circulating blood hormone. It is heritable and correlated to NFI. A blood test determines the level of IGF-1 in a particular animal, which is of immense value to the seedstock producer.

AN EXAMPLE...

- Two bulls have the following NFI EBV's, with the breed average being 0.
- Bull A +0.5kg/day Bull B -0.7kg/day.
- A simple interpretation is that Bull B having a -tive NFI EBV would be expected to breed 'more efficient' progeny, than Bull A or a breed average bull.
- If the two bulls were similar in their weight EBV's and joined to average cows, the progeny of B would eat 0.6kg less per day than the progeny of A (ie half the difference of 1.2kg, between Bull A and Bull B EBV's, as obviously the cows contribute half the genetics).

Selecting for Net Feed Intake...

Selecting for NFI will reduce feed intake without compromising body weight or performance.

Correlation with other traits, particularly meat quality research indicates there is no effect on other traits, when selecting for NFI apart from a small link with leanness (cattle with lower NFI EBV's being slightly leaner). The correlation is however low, and can therefore be managed by selecting on both traits.



Net feed intake research proves Herefords are the most efficient British breed

Efficiency has come into sharp focus during recent drought years, when feed costs were easily measured in truckloads of grain or hay, but even in good seasons running efficient cattle makes more money for everyone involved.

Bob Freer
Technical Advisor, Australian
Hereford Society



Research unveiled at a genetics conference held on the Sunshine Coast in September has provided scientific proof to back the long-held belief of many cattle producers – some cattle breeds are more efficient at using feed than others.

The results compared the daily feed intake and live weights of 469 animals by sires from nine breeds joined to Brahman cows, and their net feed intake (NFI). It was evident that the Hereford was the leading British breed for NFI, being significantly more efficient than either Angus or Shorthorn breeds.

The most efficient were the straight Brahman cattle, which had an average NFI of -0.61 kilograms a day, meaning they ate 0.61kg less than their weight and growth rate would indicate. They also had the lightest entry weight, at 371kg, and daily gain at 1.12kg/day.

Next most efficient were the Charolais and Limousin calves, at -0.57kg/day and -0.50kg/day respectively, followed by Hereford (-0.30kg/day) and Santa Gertrudis (-0.27). Belmont Red, Shorthorn and Angus were least efficient, with NFIs of +0.01, +0.16 and +0.30kg/day respectively. (see graph)

Starting from very similar entry weights of about 445kg (live) the Hereford and Angus cattle had the highest daily gains of and 1.57kg/day, and 1.56kg/day respectively, with Shorthorns not far behind at 1.52kg/day. But most important was the fact that **Herefords used significantly less feed than either Angus or Shorthorn to achieve the weight gain.**

Technical Consultant to the Hereford Society, Bob Freer said, "With this in mind, we need to bring the CRC results back to on-farm relevance.

"Given that the sires were representative of their breeds and NFI results obtained under feedlot conditions carried through to on-pasture (as confirmed by Trangie results), then pure Angus would consume 1.2kg feed/day more than purebred Herefords of the same body weight and daily gain. That is, an extra 61 tonnes of feed per year for a 100 cow unit.

"The paper also shows that Herefords had an 8.4 per cent better adjusted feed conversion ratio and 6 per cent lower actual daily feed intake than Angus – that is, you could run 106 Herefords on the