



## **Animal Health & Nutrition Specialists!**

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### **Nutrition and Genetics**

The ability of stock to convert feed into weight gain is affected by the genetic potential of the stock. Stock with a high potential for growth will eat more feed and put on more weight from that feed than stock with lower growth potential.

The efficiency with which this feed is used is also determined by the genetics of the stock. The measure of how efficiently stock convert feed into gain is called the feed conversion efficiency. This is the ratio of feed eaten to weight gained. Another measure that has important genetic implications is net feed intake. Net feed intake (NFI) is a measure of the difference between the amount of weight gained from an amount of feed and the theoretical amount of feed that a standard beast would have used to gain that weight.

Net feed intake is particularly important in feedlot cattle as a key driver of profitability is the efficiency with which stock convert feed into gain. On pasture with efficient cattle more can be run on the same amount of pasture. By selecting for net feed efficiency faster growing, more efficient cattle can be selected for without selecting for a larger framed beast. With continued selection for larger framed animals more feed is required to maintain and run breeders.

Breedplan has recently introduced NFI estimated breeding values (EBVs). A negative EBV indicates a more efficient animal in that it takes that animal less feed to put on a given amount of weight. The test for Net Feed Intake is difficult and expensive to run and so the beef CRC has developed a blood test for Insulin Like Growth Factor I (IGF-I). IGF-I levels are correlated with Net Feed Intake and so this blood test can give a good indication of the feed efficiency of the animal. With a combination of both types of tests, animals that can convert feed more efficiently can be selected.

Animals that have a high genetic potential for growth will benefit more from supplementary feeding than will animals with low genetic potential. These animals will consume more feed and so require better nutrition to sustain the growth that they are capable of.

Temperament is also a trait that can be affected by genetics. A flight time test that measures the time it takes a beast to cover a set distance after being released from a crush is a good objective test of temperament. Animals with higher flight times are calmer and perform better in feedlots, are sick less often in feedlots, recover quicker from transport and produce better quality meat. By selecting for animals with higher flight times all of these aspects can be improved in the progeny. Temperament can also be affected by handling properly, training weaners and culling stirry animals.

In summary, the genetics of the beast being fed will affect its nutritional requirements and how well it responds to supplementary feeding. Animals with higher genetic potential for growth will require a higher status of nutrition and will respond better to supplementary feeding. With Net Feed intake information, animals that are more efficient at converting feed can also be selected for, allowing more stock to be run on the same feed resource.