

Dry Matter Intake EPD and \$Gain

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Expected progeny differences (EPD) for Dry Matter Intake (DMI) and \$Gain (an economic subindex) are available for all animals on Herdbook.org. The purpose of these traits is to help breeders better characterize terminal performance by evaluating genetic differences for feed intake and the profitability potential associated with growth relative to intake.

The IGS science team is committed to the development of genetic tools that aid breeders in making commercially relevant selection decisions. Being able to identify animals with genetics for more efficient growth relative to feed intake is an industry-wide concern. Feed intake records submitted to IGS by partner breed organizations and the existing growth records database were used to develop the DMI EPD and \$Gain, which is an economic subindex that weighs an animal's growth potential with respect to its intake to provide a snapshot of that animal's profitability potential in the feedlot growing phase (growth relative to intake). An extensive validation process was performed to ensure DMI and \$Gain were reflective of the existing growth and feed intake records.

DMI EPD

The DMI EPD is expressed as the difference in pounds of daily dry matter intake. A lower EPD is more desirable, as this is representative of the genetic potential for progeny to consume less feed. For example:

Bull A = 1.00 DMI EPD

Bull B = 0.00 DMI EPD

You would expect progeny from Bull B to eat one pound less daily dry matter of feed compared to progeny from Bull A.

\$Gain

\$Gain is a prediction designed to identify animals that are more profitable in the feedlot by converting feed into weight. \$Gain is a combination of Dry Matter Intake EPD (DMI) and Average Daily Gain EPD (ADG), where ADG is weighted by the value of a pound of gain, and DMI is negatively weighted by the cost of a pound of dry matter. \$Gain is expressed as the dollar difference per head per day during the post-weaning period, and a higher value is more desirable. For example:

Bull A = \$0.10 subindex value

Bull B = \$0.00 subindex value

You would expect progeny from Bull A to be \$0.10 more profitable per day than progeny from Bull B due to a combination of feed requirements and growth potential. As research EPD, these will be released monthly to incorporate new data as it is received by IGS. It is important to acknowledge that development of both metrics into a weekly genetic evaluation is still under development and may take some time.

Data Collection

The IGS science team encourages producers to submit feed intake records on their animals to their breed association staff, which can then be uploaded to the IGS multi-breed database. Reporting feed intake data will greatly help bolster the genetic evaluation, improve prediction accuracy, and help to accelerate the launch of DMI into a weekly genetic evaluation. Members are encouraged to follow these guidelines for feed intake data collection. For more information, members should visit the Beef Improvement Federation guidelines available at guidelines.beefimprovement.org.

Individual feed intake records are often taken post-weaning or around yearling age.

Warm-up period: This depends on the background of the cattle and the type of feed intake system. If calves are already accustomed to eating out of bunks, a seven-day warm-up period with the feed intake system is likely adequate. For cattle that have not yet been bunk-broke, they could need up to a 21-day warm-up period.

Feed Intake Test: ASA recommends a 42-day minimum, which allows for missed days due to weighing or problems with the intake measurement. Records should be submitted as a measure of dry matter intake. No as-fed data should be reported.

How are DMI and \$Gain factored into \$API and \$TI?

The relationship of the value of gain against the cost of intake is, and has already been, factored into \$API and \$TI since their inception. Because of the high genetic correlation between growth and intake, a pseudo-prediction for intake was developed using growth phenotypes and integrated into the indexes in the same structure as the \$Gain prediction. This pseudo-prediction for intake does not, however, incorporate actual feed intake records, thus the development and subsequent release of DMI. Development is still underway to migrate the new DMI EPD into the calculation of \$API and \$TI.

What should I consider when factoring DMI into my decision-making?

Producers should exercise caution when making genetic selections based solely on DMI reduction. Studies have shown there is a high genetic correlation between DMI and Average Daily Gain (ADG), meaning that sole selection for reduced intake can inadvertently lead to slower-growing, smaller-framed cattle. Selection on biological efficiency does not always equate to profitability, thus the recommendation for considering \$Gain in your selection decisions.

Producers are encouraged to evaluate DMI and \$Gain predictions, and compare with their expectations. Producers who have any questions should contact IGS at IGS@InternationalGeneticSolutions.com. **S**