



IGENITY Scores are easy to incorporate into your program. A commercial producer may want to focus on the economically relevant traits that are most important, in order to identify those animals that best represent the future direction of your operation. As a Seedstock producer the opportunity to fine-tune selection and management to help meet your customer's goals is enhanced. IGENITY Scores should be used as an additional layer of information, to compliment the tools currently employed in selecting and managing animals (ultrasound, EPD's, performance data, etc.).

The values listed in the table, reflect the relative difference, on average, expected in a group of animals compared to contemporaries with an IGENITY profile score of 1. A brief explanation of each trait follows the table.

IGENITY PROFILE RESULTS AND ASSOCIATED VALUES.
 What an IGENITY profile means.

IGENITY profile scores range from a low of 1 to a high of 10 for each economically important trait analyzed.

IGENITY PROFILE RESULTS AND ASSOCIATED VALUES*

IGENITY RESULT	RESIDUAL FEED INTAKE (TAURUS)**	AVERAGE DAILY GAIN (LBS./DAY)	TENDERNESS IN LBS. OF WBSF	MARBLING SCORE	QUALITY GRADE	YIELD GRADE	BACK FAT THICKNESS IN INCHES	RIBEYE AREA IN SQUARE INCHES	HEIFER PREGNANCY RATE (%)	STAYABILITY %	MATERNAL CALVING EASE (%)	DOCILITY (%)
10	4.2	0.81	-2.3	161.4	64.4	1.35	0.37	2.56	18.8	16.7	9.5	45.4
9	3.6	0.72	-2.0	141.3	57.2	1.21	0.32	2.22	16.2	14.7	8.4	39.6
8	3.1	0.64	-1.9	123.6	50.1	1.07	0.28	1.93	14.2	12.9	7.3	34.7
7	2.7	0.54	-1.5	106.4	42.9	0.92	0.24	1.64	12.1	11.2	6.2	30.0
6	2.2	0.44	-1.2	88.4	35.8	0.76	0.21	1.35	10.0	9.5	5.1	25.3
5	1.8	0.34	-1.1	70.6	28.6	0.61	0.17	1.07	8.1	7.6	4.1	20.5
4	1.3	0.24	-0.8	53.3	21.5	0.46	0.13	0.80	6.0	5.8	3.1	15.7
3	0.9	0.14	-0.4	35.5	14.3	0.31	0.09	0.53	4.0	3.9	2.0	10.7
2	0.4	0.05	-0.2	17.7	7.2	0.15	0.06	0.24	1.9	2.5	1.0	5.8
1	0	0	0	0	0	0	0	0	0	0	0	0
P-value	8.0×10^{-8}	2.4×10^{-19}	1.9×10^{-08}	3.8×10^{-18}	1.0×10^{-20}	1.6×10^{-16}	3.9×10^{-20}	1.8×10^{-14}	2.6×10^{-30}	1.1×10^{-34}	4.2×10^{-32}	3.1×10^{-19}

*Data available on request. Results expressed represent differences expected in animals compared to contemporaries with IGENITY Profile scores of 1.

**Lbs. of feed per day.

Revision
APR 7/09

Residual Feed Intake (Feed Efficiency):

The IGENITY Feed Efficiency analysis predicts genetic potential for Residual Feed Intake (RFI). RFI describes an animal's feed intake above or below its predicted needs for maintenance and growth. An animal with a lower RFI score is more desirable and will:

- Eat less to achieve the same gains
- Gain more on the same amount of feed
- Require less feed to maintain body condition as a mature adult.

Combining the Feed Efficiency with Average Daily Gain results give you a powerful look at an animal's ability to grow efficiently, maintain body condition as a mature animal and have efficient offspring.

Average Daily Gain:

A key profitability measurement for any operation, Average Daily Gain is measured in pounds of gain per day (lbs./day). The IGENITY profile result for Average Daily Gain identifies an animal's genetic potential for rate of gain, for both calves and post-weaning growth. Animals which score a 10 are capable of gaining an additional 0.81 lbs/day over animals which score a 1 – which means a 166 lb. difference over 205 days.

Tenderness:

The IGENITY Profile score for tenderness represents an animal's genetic potential for tenderness, as measured by Warner-Bratzler Shear Force (WBSF), with "10" the most tender and "1" the least tender. Lower shear force means more tender beef. In a group of animals with an IGENITY tenderness score of "10," 2.3 lbs less shear force is required than a group of animals with a score of "1." This means higher IGENITY scores represent animals that are more tender than those with lower scores.

Marbling Score:

Higher IGENITY scores for marbling equal greater genetic potential for marbling. In a group of animals with an IGENITY Profile score of "10" for Marbling, the average marbling can be expected to be 161.4 points greater than in a group of animals with a score of "1". The IGENITY Marbling score is useful in deciding between animals with similar marbling EPD's or ultrasound data. Marbling points indicate how much intramuscular fat is present in the carcasses, and thus contribute to the propensity to grade Canada AAA.

Quality Grade (Canada AAA or higher):

The IGENITY profile for Quality Grade indicates differences in magnitude that marbling scores will contribute to Quality Grade. More specifically, a group of animals with a Quality Grade score of “10” can be expected to have 64% more animals grade Canada AAA than a group of animals with a Quality Grade score of “1”.

Yield Grade:

Higher IGENITY Yield Grade scores equal a genetic potential for a higher Yield Grade. Since higher Yield Grade values equate to more fat and/or less muscle, animals with higher IGENITY Profile scores for YG are expected to be, on average, genetically fatter and/or lighter muscled. A group of animals with an IGENITY profile score of “10” for Yield Grade can be expected to receive a Yield Grade score that is 1.35 units of yield grade higher than a group of animals that receives a score of “1”. A Yield Grade 1 (YG1) relates to the lower IGENITY profile scores, while a Yield Grade 3 (YG3) reflects higher IGENITY profile scores.

Back Fat Thickness:

In a group of animals with an IGENITY profile score of “10” for Fat Thickness, the average fat thickness is expected to be 0.37 inches (9.4 mm) greater than in a group of animals that score “1”. Lower IGENITY profile scores indicate less external fat, while higher scores reflect more external fat. A minimum of 2 mm of backfat is required to grade A or better in Canada.

Ribeye Area:

In a group of animals with an IGENITY profile score of “10” for Ribeye Area, the average ribeye area is expected to be 2.6 square inches greater than in a group of animals that score “1”. Lower IGENITY profile scores reflect smaller ribeye areas, with higher scores reflecting larger ribeye areas.

Maternal Traits

Heifer Pregnancy Rate indicates a heifer's chance of becoming pregnant over a normal breeding season, relative to other heifers.

Stayability indicates the chance a heifer will remain in the herd until at least six years old, relative to other animals.

Maternal Calving Ease is measured as the percentage of unassisted births – a higher value indicates greater calving ease.

Docility

The IGENITY profile for docility indicates the animal's genetic potential to be calm, or to have calm offspring. Higher IGENITY scores for this trait indicate a higher likelihood that calves possess acceptable behaviour.

Coat Colour:

The IGENITY Coat Colour analysis looks at the genes that determine red or black coat colour. Results are reported as Homozygous Black or Not Homozygous Black.

Genetic Abnormalities and Conditions:

Meril IGENITY now offers DNA testing for eight genetic abnormalities and conditions. They are as follows:

- Arthrogryposis Multiplex (AM)
- Coat Colour Dilutor (DL)
- Idiopathic Epilepsy (IE)
- Myostatin (M)
- Neuropathic Hydrocephalus (NH)
- Osteopetrosis (OS)
- Pulmonary Hypoplasia with Anasarca (PHA)
- Tibial Hemimelia (TH)

Bovine Viral Diarrhea – BVD Virus:

This is a test for the presence of the BVD Virus. Negative animals are free of the BVD Virus. Positive animals have the virus present. If there is a positive test result, contact your veterinarian. Laboratory testing by your veterinarian to confirm or deny BVD Virus Persisten Infection should be done 30 days after the original IGENITY sampling.

VALIDATION PROCESS:

Analyses in the comprehensive IGENITY profile begins with the discovery of DNA markers (most often single nucleotide polymorphisms or SNP's). All the markers behind the IGENITY profile were discovered by independent scientists at research institutions, including universities, research organizations, and the government entities such as the USDA.

Markers are then analyzed at IGENITY in validation populations. High quality validation is dependent on good quality resource populations. IGENITY uses multiple resource populations that represent various production environments and biological types, often working with industry partners from the seedstock, cow-calf, feedlot and/or packing segments of the beef industry to collect phenotypes that are not commonly available. To date, IGENITY has captured data from tens of thousands of animals with hundreds of phenotypes under many different types of environmental conditions or use in it's validation efforts.

Once the phenotypic data is captured, geneticists at IGENITY carefully analyze marker associations, using analytical methods that are well documented in the scientific literature and reviewed with academic government scientists to ensure their validity and acceptance. Thousands of animal phenotypes are used to conduct these analyses, resulting in confidence that any significant associations discovered will have a high probability of truly occurring in various biological types and environments. Only after new markers pass this rigorous validation process does IGENITY make new markers available to the beef industry.

Multi-Sire Parentage

IGENITY Multi-Sire Parentage is available with or without requesting the IGENITY Profile. For commercial producers this test determines the most likely sire of each calf when multiple sires are used for breeding animals on pasture. It helps to identify bulls that sire the most or fewest calves, identifies most likely sires of best – and worst performing calves, and can calculate within-herd EPD's on traits of interest. Traits commonly included in a genetic evaluation include calving ease, weaning weight, yearling weight, heifer fertility, cow longevity, and carcass traits/grid value. Seedstock producers can determine if calves are sired by clean-up bulls or AI; matching sires to progeny allows producers to run multiple sires in a single pasture.

Visit www.igenity.com for additional information, to order additional kits and view your results on-line, or call your IGENITY representative.