



The IGENITY Profile

IGENITY® provides the beef industry with the most comprehensive genetic profile of multiple traits of economic importance. The insights gained from an IGENITY profile help producers make more confident selection, management and marketing decisions. The IGENITY profile includes multiple-marker analyses for traits such as:

Tenderness, Marbling, Quality Grade, Yield Grade, Fat Thickness, Ribeye Area, Average Daily Gain, Heifer Pregnancy Rate, Stayability, Calving Ease, Docility and Feed Efficiency.

Profile Score Advantages

To assist cattle producers in understanding the value of DNA technology, IGENITY has developed a scoring system for each trait using a scale of 1 to 10. Higher values are not necessarily better — they simply indicate that the animal has the potential for more of that trait. The following descriptions and table (Table 1) are useful in describing each trait and reflect the relative difference expected in animals compared to contemporaries with an IGENITY profile score of 1.

Average Daily Gain:

The IGENITY profile results for Average Daily Gain identifies an animal's genetic potential for rate of gain. Animals which score a 10 would have the potential to gain .81 pounds more per day than animals that score a 1.

Tenderness:

The analysis in the IGENITY profile for tenderness represents an animal's genetic potential for tenderness as measured by Warner-Bratzler Shear Force (WBSF), with 10 being the most tender and 1 being the least tender. Lower shear force means more tender beef. In a group of animals with a score from IGENITY of 10 for tenderness, 2.3 pounds less shear force is required than an animal with a score from IGENITY of 1.

Marbling Score:

Higher scores from IGENITY for marbling equal greater genetic potential for marbling. In a group of animals with a score from IGENITY of 10 for marbling, the average marbling score can be expected to be 161 points greater than animals with a score of 1. The USDA beef grading system for marbling uses a 100 to 999 point scale. Marbling points reflect how much intramuscular fat is present in each carcass, and thus the potential to grade USDA Choice.

Fat Thickness:

Lower IGENITY profile scores indicate less external fat, while higher scores reflect more external fat with a difference of .37 inches between a group of animals that scored a 1 versus a group of animals that scored a 10.

Ribeye Area:

Higher scores from the IGENITY profile reflect larger ribeye areas and lower scores reflect smaller ribeye areas. In a group of animals with a score from IGENITY of 10 for ribeye area, the average ribeye is expected to be 2.56 square inches larger than in a group of animals with a score of 1.

Percent Choice (Quality Grade)

Higher scores from IGENITY for quality grade equal greater genetic potential to grade choice or higher. In a group of animals that possess a score from IGENITY of 10 for quality grade, it is likely that 64.4% or more should grade USDA Choice or higher.

Yield Grade

Higher scores from IGENITY for yield grade equal a genetic potential for a higher USDA yield grade. Since higher yield grade values are a result of more fat and/or less muscle, animals with higher scores for yield grade are expected to be fatter and/or lighter muscled. A group of animals with a score from IGENITY of 10 for yield grade can be expected to receive a yield grade that is 1.35 units of a grade higher (less favorable) than animals that receive a score of 1 from IGENITY.

Heifer Pregnancy Rate

Higher scores from the IGENITY profile for heifer pregnancy rate mean a higher percentage of heifers should become pregnant during the breeding season, which is measured at the first pregnancy check. A group of heifers with a score of 10 should have an 18.8% greater opportunity to become pregnant than a group of heifers with a score of 1.

Stayability

The analysis for stayability from the IGENITY profile represents a female's ability to remain in the herd until six years of age or beyond. A group of heifers with a score of 10 should have a 16.7% greater likelihood to stay in the herd until six years of age than a group of heifers with a score of 1.

Maternal Calving Ease

Higher scores from the IGENITY profile for calving ease mean a higher percentage of unassisted births. A score of 10 from the IGENITY profile represents 9.5% greater opportunity for unassisted births than a score from IGENITY of 1.

Docility

Calm cattle are not just about handler safety — calm cattle eat more, have better response to vaccinations and preconditioning, and are more tender. The IGENITY profile for docility is the animal's genetic potential to be extremely calm, or to have calm offspring. Higher scores from the IGENITY profile indicate a higher percentage of calves that possess calmer behavior.

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 low RFI score 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.

The results of Feed Efficiency combined with ADG give you a powerful look at an animal's ability to grow efficiently, maintain body condition as a mature animal and have efficient offspring.

Table 1. IGENITY RESULTS KEY

Trait	IGENITY Result	1	2	3	4	5	6	7	8	9	10
	Average Daily Gain	0	0.05	0.14	0.24	0.34	0.44	0.54	0.64	0.72	0.81
	Tenderness in lbs. of WBSF	0	-0.2	-0.4	-0.8	-1.1	-1.2	-1.5	-1.9	-2.0	-2.3
	USDA Marbling Score	0	17.7	35.5	53.3	70.6	88.4	106.4	123.6	141.3	161.4
	Backfat Thickness	0	.06	.09	.13	.17	.21	.24	.28	.32	.37
	Ribeye Area in Sq. Inches	0	0.24	0.53	0.80	1.07	1.35	1.64	1.93	2.22	2.56
	Yield Grade	0	0.15	0.31	0.46	0.61	0.76	0.92	1.07	1.21	1.35
	Heifer Pregnancy	0	1.9	4.0	6.0	8.1	10.0	12.1	14.2	16.2	18.8
	Stayability	0	2.5	3.9	5.8	7.6	9.5	11.2	12.9	14.7	16.7
	Calving Ease	0	1.0	2.0	3.1	4.1	5.1	6.2	7.3	8.4	9.5
	Docility	0	5.8	10.7	15.7	20.5	25.3	30.0	34.7	39.6	45.4

How to use the IGENITY Profile

IGENITY Scores are easy to incorporate into your selection criteria. They represent an additional tool when combined with EPD's, ultrasound and visual appraisal. As the case with any selection method, single trait selection should be avoided. Select those animals that best combine the traits you desire to emphasize in your herd. As an example, if you are trying to decide between two bulls – Bull A and Bull B - and Bull A has an IGENITY profile score for Marbling of 8 and Bull B has a Marbling score of 7 and you prefer Bull B's EPD's and phenotype; then you can confidently select Bull B as his genetic potential is still in the direction you prefer.