



# Igenity<sup>®</sup> Basic Results Key

**Igenity Basic** uses the power of DNA to help you understand and manage the potential for animals to perform and transmit traits of economic importance. It is a great option for producers looking for an alternative to the traditional evaluation. Igenity Basic is the ideal solution for *Bos taurus* crossbred dairy cattle.

The profile includes evaluations on key production, health and fertility traits for all dairy cattle breeds.

## Productive Life (PL)

Producers know that fewer than 60% of cows make it past their second lactation, but few know that the value of every extra month of productive life translates an additional \$29 profit per cow<sup>1</sup> – that is an extra \$2,900 profit per month for a 100 cow herd.

## Fertility

Fertility can be a major driver of profitability for dairy farms – now you can know an animal's potential for fertility before you ever breed her. Measured in pregnancy rate, cows that score a 10 will have 5.1% higher pregnancy rates than cows with scores of 1.

## Somatic Cell Score (SCS)

SCS is a profit driver for many producers as well as an indicator of potential for mastitis. SCS can be used to identify calves and heifers with potential for high SCS and susceptibility to mastitis before they enter the parlor. An animal that scores a 10 for SCS has the potential for higher somatic cell counts and may be more susceptible to mastitis than an animal with a 1.

## Dairy Form

Research has shown cows low in dairy form are less susceptible to metabolic, reproductive and foot and leg problems.<sup>2</sup> Dairy form is closely related to productive life, especially through its effect on reproductive traits. Animals receiving a 10 score for dairy form as part of the Igenity Basic profile, will have low dairy form – a good indicator of longevity.

## Using the 1–10 Results

The 1-to-10 scoring system provides a more definitive and focused profile. You can use the results to:

- Make more accurate breeding decisions
- Assist in heifer selection, whether buying, selling or keeping replacements
- Improve voluntary culling decisions
  - Select superior dams or donor animals
  - Adjust management practices
- Take inventory of your herd and establish a baseline for improvement

The comprehensiveness of the Igenity Basic profile allows you to monitor the traits most important to your future profitability. Use this convenient scoring system in combination with published genetic evaluations (like PTAs and PAs) to benchmark and monitor the genetic progress in your herd.

Testing animals early in their lives provides a powerful genetic basis for the many breeding, selection and management decisions you will make throughout their lifetimes.

## Milk Production Traits

The Igenity Basic profile calculates scores for milk, fat, fat percent, protein and protein percent using multiple DNA markers. These markers identify genetic variations that help regulate milk yield, protein and fat content, without decreasing fertility. The combined results provide a more complete picture of an animal's production potential.





## Cheese Production

### Kappa casein

There are several forms of kappa casein – A, B and E – that are associated with milk protein and quality. These variants are related to the renneting process for cheese production. Studies have also shown that cheddar cheese yield can be up to 8% higher and mozzarella up to 12% higher with BB milk versus AA milk<sup>3</sup>. The E variant has an adverse effect on cheese production.

BB: preferred result for cheese production.  
AB and BE: intermediate for cheese production.  
AA and AE: least favorable result for cheese production.

### Beta casein AB

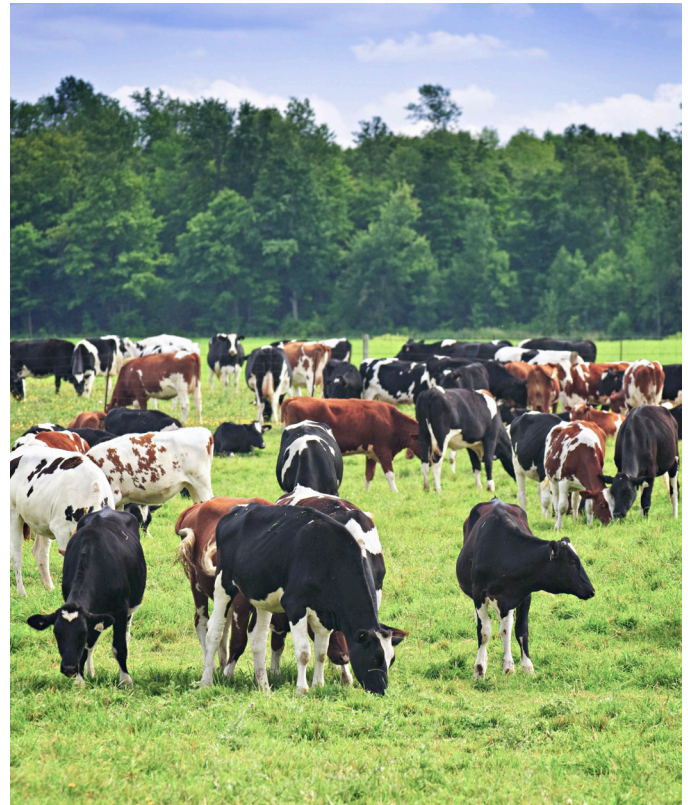
Like kappa casein, there are several different forms of beta casein (A and B). Higher milk yield is associated with the A variant while higher protein and casein yields are associated with the B variant. Beta casein B is similar in effect to kappa casein B.

### Beta lactoglobulin

Beta lactoglobulin is a major whey protein that has a significant effect on casein number and cheese yield. The B variant has higher casein and cheese yields.

#### Beta lactoglobulin and beta casein

BB: most favorable result for casein and cheese yield.  
AB: intermediate result for casein and cheese yield.  
AA: least favorable result for casein and cheese yield.



## Genetic Diseases

A variety of inherited genetic defects are present in the population of the dairy breeds and routine tests are available to identify carrier animals.

### Bovine Leukocyte Adhesion Deficiency (BLAD)

BLAD is a disease that results in impaired function of the white blood cells of the immune system. In order for an animal to demonstrate clinical signs of the disease, it must have two copies of the gene. Carriers (animals with one copy of the gene) are normal.

T: Tested Free

C: Carrier

A: Affected

### Deficiency of Uridine Monophosphate Synthase (DUMPS)

DUMPS is characterized by early embryonic death in animals that have two copies of the gene. Animals with one copy of the gene (carriers) are normal.

T: Tested Free

C: Carrier

A: Affected

1. Van Raden and Multi-State Project S-1008. 2006. <http://www.USDA-AIPL.gov>. Accessed September 22, 2006  
2. Dechow et al., Correlations Among Body Condition Scores from Various Sources, Dairy Form, and Cow Health from the United States and Denmark. JDS 2004, 87:3526-3533.  
3. Fitzgerald, R.J. Exploitation of Casein Variants. "Milk Composition, Production, and Biotechnology." (eds. R.A.S. Welch, et al). 1972, pp.153-172. CAB International, Cambridge.

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## Other Services and Results

### Bovine Viral Diarrhea Persistently Infected (BVD-PI)

If you select the option for BVD-PI testing, a laboratory examination will be conducted and you will receive a report indicating the status of your animal, relative to persistent infection with BVD (Bovine Viral Diarrhea) Virus. If the animal is suspected to be positive, genomic testing will not proceed unless otherwise requested. It is advisable to cull persistently affected animals as they are sub-optimal performers and a source of infection for other animals.

**Negative:** Negative for BVDV Persistent Infection (PI). Genomic testing will proceed.

**Positive:** Positive for BVDV Persistent Infection (PI). Confirmation of BVDV status is strongly recommended. Genomic testing will not proceed.

**Inconclusive:** Sample tested weakly positive for BVDV but a final diagnosis regarding the BVDV status cannot be made at this time. Presence of BVDV may be from recent vaccination with modified live vaccine, from recent BVDV infection, or from being truly PI. Confirmation of actual BVDV status is strongly recommended. Genomic testing for original sample will not proceed.

### SeekSire™ Cattle Parentage

In modern dairies' reproductive protocols, parentage verification is a key tool in genetic improvement. SeekSire parentage measures a unique mix of world-standard parentage markers recognized by the USDA and the International Society of Animal Genetics (ISAG). This is an essential tool for confirming the genetic contribution of parent stock and for making reliable decisions in genomic-assisted mating, trait screening and herd improvement. All Neogen® bovine genomic tests use this unique set of parentage markers. Parent(s) must be tested for SeekSire or have genotypes on file in order to request a parentage analysis.

**Confirmed:** The reported sire/dam was confirmed through genomics.

**Unconfirmed:** The reported sire/dam has not been genotyped and therefore cannot be confirmed or excluded.

**Excluded:** The submitted sire/dam was excluded through genomics.



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## Igenity Basic profile results and associated values\*

Igenity Basic Profile Score	Milk Yield**	Fat**	Protein**	Dairy Form***	Productive Life (months)***	Somatic Cell Score	Fertility (%)
10	5261	181	132	-3.8	9.9	0.50	5.1
9	4677	161	117	-3.4	8.8	0.44	4.5
8	4092	141	102	-3.0	7.7	0.39	4.0
7	3508	121	88	-2.6	6.6	0.33	3.4
6	2923	101	73	-2.1	5.5	0.28	2.8
5	2338	80	59	-1.7	4.4	0.22	2.3
4	1754	60	44	-1.3	3.3	0.17	1.7
3	1169	40	29	-0.9	2.2	0.11	1.1
2	585	20	15	-0.4	1.1	0.06	0.6
1	0	0	0	0	0	0	0

\*Difference calculated based on Igenity Basic profile score 1.

\*\*Production in pounds per lactation.

\*\*\*Combine for enhanced longevity prediction tool.

### Why Igenity Basic?

Using Igenity Basic means being more confident in your selection decisions on crossbred dairy cattle. It means being sure that you are selecting the right heifers for the future of your operations. Igenity Basic saves you money by reducing heifer raising costs while increasing production profitability that impacts your bottom line.

### What an Igenity Basic profile score means.

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

Data is represented as estimated breeding values, which reflect the animal's own performance. To calculate an animal's PTA (Predicted Transmitting Ability) - or the value they would pass to their offspring - divide this value by two.



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