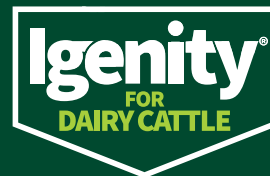


Trait and Genetic Condition Testing Packages



Igenity's dairy portfolio includes comprehensive packages of traits and conditions for convenient, affordable screening in a dairy breeding program. These products combine tests for related traits into one testing package, including combinations for milk protein, breeding stock and deleterious genetic conditions, allowing you to receive more information from just one sample. Trait and genetic condition testing packages feature rapid turnaround time, reliable, accurate results delivery, and cost-effective testing.

Screening for a variety of traits and genetic conditions at the same time will allow for better management of deleterious recessives as well as the proliferation of desirable traits in the dairy cattle population.

Igenity's Trait and Conditions bundles include:

- | | | |
|-------------------------------------|------------------------------------|--------------------------------------|
| • SeekSire™ Cattle Parentage | • Dairy Milk Protein Traits | • Dairy Breeding Stock Traits |
| • Dairy Recessive Traits | • CVM | • Coat Color |
| • Fish Milk | • BVD-PI | |

SeekSire™ Cattle Parentage

Purpose: World standard for cattle parentage verification

Availability: All dairy breeds, including Bos taurus and Bos indicus

Price: \$15 per animal tested

Turnaround Time: 2-3 weeks

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 International Society of Animal Genetics.

This is an essential tool for confirming the genetic contribution of parent stock and making reliable decisions in genomic-assisted mating, trait screening and herd improvement.

All Neogen® bovine genomic tests use this unique set of parentage markers. Sire and dam information must be on file to utilize this information. If not on file, all putative sires and dams will also need to be tested.

Igenity Dairy Milk Protein Traits

Purpose: Selection tool for milk protein management

Availability: All dairy breeds, including Bos taurus and Bos indicus

Price: \$15 per animal tested

Turnaround Time: 2-3 weeks

Includes:

- **A2 Beta Casein** – A2 beta casein milk protein offers potential human health benefits and sells for a premium.
- **Kappa Casein** – Kappa casein protein variants A, B and E impact cheese production. BB milk can raise cheddar yield 8% and mozzarella 12% versus AA milk. The E variant is adverse on cheese production.
- **Beta Casein AB** – Beta casein A raises milk yield while variant B raises protein and casein yields. Beta casein B is similar in effect to Kappa casein B.
- **Beta Lactoglobulin** – A major whey protein affecting cheese yield. The B variant has higher casein and cheese yields while A is less favorable.

Igenity Dairy Breeding Stock Traits

Purpose: Broad genomic screening packages for breeding cattle selection

Availability: Milk proteins and polled available for all dairy breeds. Embryonic lethals available for Holstein, Jersey, Ayrshire and Brown Swiss

Price: \$40 per animal tested

Turnaround Time: 2-3 weeks

Includes:

- Milk protein traits – Selection tool for milk protein management, including A2, Kappa- and AB Beta-casein, Beta lactoglobulin.
- Dairy embryonic lethal traits – Screening bundle of breed specific embryonic lethal traits including HH1, HH2, HH3, HH4, HH5, JH1, AH1, and BH2.
- Horned/Polled – Selection tool for polled cattle. Polled is a dominant trait in dairy cattle.

Igenity Dairy Recessive Traits

Purpose: Screening tool for genetic health

Availability: Holstein and Brown Swiss

Price: \$40 per animal tested

Turnaround time: 2–3 weeks

Includes:

- Brachyspina – The specific mutation which causes abortions early in gestation (Holstein).
- Bovine Leukocyte Adhesion Deficiency (BLAD) – BLAD impairs white blood cell function (Holstein).
- Deficiency of Uridine Monophosphate Synthase (DUMPS) – Cause of early embryonic death (Holstein).
- Mulefoot – Fusion of cattle foot (Holstein).
- Citrullinemia – Urea cycle disorder, ammonia accumulates in blood (Holstein).
- Holstein Cholesterol Disorder (HCD) – Animals affected don't produce cholesterol; carriers' ability to produce cholesterol is reduced (Holstein).
- Spinal Muscular Atrophy (SMA) – Skeletal muscle atrophy, decreased reflexes and weakness (Brown Swiss).
- Spinal Dysmyelination (SDM) – Inability to stand at birth (Brown Swiss).
- Syndrome of Arachnomelia and Arthrogryposis (SAA) - Inherited neuromuscular dysfunction early in gestation (Brown Swiss).
- Weaver – A weaving gait (Brown Swiss).

Additional Screening Tools

Complex Vertebral Malformation (CVM)

A lethal hereditary syndrome in Holstein

Availability: Holstein

Price: \$37 per animal tested

Turnaround time: 2–3 weeks

Coat Color

Identifies the genotype combination that determines coat color. Black is the dominant trait in Holstein dairy cattle while red is recessive.

Availability: Holstein

Price: \$15 per animal tested

Turnaround time: 2–3 weeks

Fish Milk

Metabolism error associated with a fishy off-flavor in cow's milk due to elevated levels of trimethylamine.

Availability: Ayrshire and Swedish Red

Price: \$90 per animal tested

Turnaround time: 2–3 weeks

Bovine Viral Diarrhea Persistently Infected (BVD-PI)

Tests for presence or absence of a virus that leads to respiratory and reproductive issues in dairy cattle.

Availability: All dairy breeds including Bos taurus and Bos indicus animals

Price: \$4 per animal tested (\$3.50 when purchased with an Igenity profile)

Turnaround time: 2–3 days

Questions on how to get started with Igenity?

It's easy:

1. Select the Igenity product and sampling method that best suits your operation
2. Order sample collection supplies at genomics.neogen.com or by calling Customer Service at 877-IGENITY
3. Collect your samples and send them in with your Igenity submission form to dairygenomics@neogen.com
4. Receive your results!



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