

Igenity[®]

BCHF

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TEST DEVELOPMENT

Q: WHAT IS THE IGENITY BCHF GENOMIC TEST?

A: Igenity BCHF helps producers manage the risk of Bovine Congestive Heart Failure (BCHF). This test analyzes DNA to estimate an animal's genetic predisposition to BCHF, reporting an EPD, Accuracy, and Percentile Rank, where lower EPD and Percentile Ranks are more favorable and indicate greater heart health.

Q: HOW IS THE IGENITY BCHF TEST DEVELOPED?

A: It's based on one of the largest single-source datasets (JR Simplot Co)—over 25,000 phenotypes and genotypes—using heart scores. It reflects polygenic risk rather than just two specific single nucleotide polymorphisms (SNPs).

Q: WHAT ARE THE 13 BREED TYPES REPRESENTED IN THE REFERENCE POPULATION?

A: The Breeds in the reference population were Angus; Angus X Charolais; Angus X Charolais X Hereford; Angus X Hereford; Angus X Holstein; Charolais; Charolais X Hereford; Charolais X Holstein; Charolais X Holstein X Jersey; Charolais X Jersey; Hereford; Holstein; Multi-breed

Q: HOW IS IGENITY BCHF DIFFERENT FROM THE OTHER BCHF TESTS AVAILABLE?

A: Unlike other tests that are based on just 1 or 2 genetic markers, Igenity BCHF uses a polygenic approach, analyzing thousands of genetic markers across the entire genome. It's built on the largest known commercial dataset of feedlot phenotypes and genotypes and incorporates heart scores to provide a more comprehensive and reliable measure of genetic risk. This makes Igenity BCHF more accurate and reflects the real-world risk in commercial cattle populations.



ORDERING

Q: IS IGENITY BCH OFFERED AS A STAND-ALONE TEST AS WELL AS AN ADD-ON TEST?

A: Yes. Igenity BCHF is available as a standalone test and an add on to Igenity Beef or the GGP Bovine 100k.

Q: HOW DO I COLLECT SAMPLES FOR THE IGENITY BCHF TEST?

A: Samples are typically collected via tissue using Allflex or DataMars tissue sample units, blood using blood cards, or hair follicles using hair cards. Tissue samples are our preferred sample type, other sample types may have additional processing fees. Work with your Neogen representative to ensure proper collection, storage, and submission protocols.

DELIVERABLES

Q: WHAT DELIVERABLES ARE RECEIVED WHEN YOU ORDER AN IGENITY BCHF TEST?

A: Customers will receive a BCHF EPD, Accuracy, and Percentile Rank results. A lower EPD and Percentile Rank are more favorable and indicate a lower risk of BCHF, where a higher EPD indicates a higher risk.

Q: IS ACCURACY* INCLUDED WITH THE DELIVERABLES?

A: Yes, accuracy is included as a deliverable for Igenity BCHF.

Q: IS THERE AN OPPORTUNITY ON AN ANNUAL BASIS (OR SOME OTHER DEFINED FREQUENCY) TO RECEIVE UPDATED EPDs BASED ON THE UPDATED REFERENCE POPULATION AND MODEL?

A: Customers can request an update to the Igenity BCHF test (if previously tested). However, it will not be automatic; the customer must specifically request this update. Please work with your Neogen representative for this.

Q: HOW MUCH CHANGE CAN WE EXPECT TO SEE AS MORE ANIMALS ARE ADDED TO THE TRAINING POPULATION?

A: While we do expect the EPDs to move as additional genomic and phenotypic data are incorporated into the model, thus far the changes have been moderate to low.

Q: WHAT DOES A “HIGH” IGENITY BCHF MEAN FOR A BULL?

A: A high BCHF genetic merit (BCHF EPD or Percentile Rank) indicates that the bull has a greater likelihood of transmitting genetic risk factors for Bovine Congestive Heart Failure to his offspring. While this does not guarantee that the condition will occur, it underscores the importance of including this information in breeding and management decisions to help reduce the incidence of heart-related losses.

*Accuracy is the reliability or level of confidence that can be placed on a trait.



GENERAL BCHF QUESTIONS

Q: WHAT IS BOVINE CONGESTIVE HEART FAILURE (BCHF)?

A: BCHF is a cardiopulmonary (heart and lungs) syndrome of cattle that is characterized by progressive heart remodeling, often leading to increased morbidity and mortality.

Q: WHAT CAUSES BCHF?

A: BCHF is complex. Contributing factors include genetics, feedlot management, altitude, and temperature swings. It typically develops from pulmonary hypertension, leading to heart thickening, dysfunction, and failure.

Q: IS THE IGENITY BCHF GENOMIC TEST A DIAGNOSIS?

A: No, it is not a diagnosis nor does it guarantee an animal will or won't develop heart failure. Many traits or genetic predispositions, such as BCHF, may not manifest in an animal unless triggered by specific environmental and/or management factors.

Q: HOW CAN I DETECT BCHF?

A: Clinical diagnosis of BCHF is challenging. Post-mortem scoring systems (heart scores) and genetic testing (like Igenity BCHF) provide tools for detection and selection.

Q: HOW HERITABLE IS BCHF?

A: Heart score (used as a proxy for BCHF) has a moderate heritability of 0.36. This makes it feasible for use in selection programs to reduce risk over generations without compromising performance traits.

Q: IS BCHF ONLY A PROBLEM IN CERTAIN BREEDS?

A: No, all breeds in the reference population showed susceptibility. Risk can exist regardless of breed type.

Q: HOW DOES BCHF DIFFER FROM HIGH ALTITUDE DISEASE (HAD)?

A: While both share similar physical symptoms, like brisket swelling and jugular vein distension, HAD is specifically triggered by hypoxia at elevations above 1500 m. BCHF can occur at lower altitudes and often presents later in the feeding cycle.

Q: WHAT'S THE ROI OF USING IGENITY BCHF?

A: While ROI will vary, reducing late-term death loss and improving feed efficiency can result in substantial savings. Avoiding just a few losses in high-risk pens may justify the cost of testing.

Q: DO ANY BREED ASSOCIATIONS HAVE GENOMIC TESTS OR PREDICTIONS FOR BCHF?

A: At time of press, no US breed association offers a breed-specific genomic test or Expected Progeny Difference (EPD) specifically for BCHF. However, several associations are actively involved in research and collaborations to address this issue.

An increased number of breed associations are partnering with Neogen to promote the Igenity BCHF test among its members, facilitating the identification and management of BCHF risk within their herds.

HOW TO USE THE TEST

Q: CAN SELECTION REDUCE BCHF RISK IN FUTURE GENERATIONS?

A: Absolutely. Selecting breeding animals with Lower BCHF EPD and Percentile Ranks helps reduce the prevalence of the condition in offspring, improving both herd health and profitability.

Q: WHEN SHOULD I CONSIDER USING THE IGENITY BCHF TEST IN MY OPERATION?

A: Consider testing before placing cattle on feed, especially in operations with known BCHF incidence. It's also helpful before breeding decisions to reduce genetic risk in future calf crops.

Q: WHAT MANAGEMENT CHANGES CAN I MAKE BASED ON BCHF?

A: You can group cattle by risk, adapt rations, minimize stress through handling, and implement monitoring for higher-risk groups. For breeding, use low-risk bulls or cows to reduce susceptibility in progeny.

Q: WILL SELECTING AGAINST BCHF COMPROMISE GROWTH OR CARCASS TRAITS?

A: While ongoing research continues to clarify the complex relationships between BCHF risk and production traits, there is currently no evidence that selection for reduced BCHF risk negatively impacts growth or carcass traits. It is important to monitor correlated responses as selection pressure increases to ensure balanced genetic progress.

Q: CAN I USE BCHF TEST RESULTS TO MANAGE FEEDLOT CATTLE?

A: Yes. Test results can guide pen-level management strategies, such as ration formulation and handling practices, to mitigate stress and reduce heart failure losses.



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