

What is HCD?

Haplotype Cholesterol Deficiency (HCD) is a fairly recent discovery that was identified in July 2015 by the German research company, VIT. The haplotype identified in HCD is directly linked to the Holstein bull *Maughlin Storm*. Both Maughlin Storm's sire and grandsire are lacking the group of DNA markers responsible for HCD meaning that this was a genetic mutation with either Storm or his dam (Whykholme Dewdrop Tacy- ET). Today there are several bulls who are descendants of *Storm* and carriers of HCD. Some of the more well known bulls affected are Stormatic, September Storm, Goldwyn.

Cholesterol deficiency is a genetic mutation known as haplotype cholesterol deficiency (HCD). It affects Holstein calves or descendants from specific Holstein genetics. The calves born with this genetic defect lack cholesterol in their cells. Without the required fat-producing cholesterol in its system, it is impossible for the animal to convert energy to fat – fat needed to carry out basic physiological functions that allow the calf to thrive. Symptoms show up soon after birth, most often, the calf dies within one to six months, but in some cases, it may survive up to two years.

Animals considered heterozygous for HCD appear normal and will likely lead a healthy productive life. Although if a carrier is mated to another carrier, it is expected that one in every four progeny would inherit the haplotype from both the sire and dam. This calf would be considered homozygous and is deemed fatal. Since this is a genetic recessive trait, you can successfully mate a carrier and non carrier with little to no risk.

With the constant advancements of Genomic testing we will continue to learn more about this disease. VIT has developed a test that can determine the status of an animal with a known HCD member of the pedigree. As the industry discovers more carriers of HCD, the animals will be listed as HCD Homozygous (definite carrier), HCD Heterozygous (Suspect or possible carrier), or a non-carrier. Contact the AMSS office to inquire about testing a possible carrier. We will continue to update a running list of HCD carriers and have it available to the breeders.

This is to be used as a tool in matings within your herd. Being aware of the known carriers will strengthen the sire offering without limiting the profitable traits these bulls have to offer. Be sure to know which sires carry HCD as well as other genetic recessive traits to properly create matings that will ensure profitability and genetic advancement within the Milking Shorthorn breed.