Frequently Asked Questions About Brachyspina

Prepared April 27, 2011 by Holstein Association USA Staff

Below are answers to some commonly asked questions about Brachyspina. For more information or to order testing materials, contact Holstein Association USA at 800.952.5200.

Q: What is Brachyspina?

Brachyspina syndrome is a congenital inherited lethal defect in Holstein cattle that causes embryonic death, stillbirth and other deformities.

Q: What does a Brachyspina affected calf look like?

Generally they are stillborn. They have severely reduced body weight, despite a normal or prolonged gestation period. There is shortening of the spine and the limbs are long and thin.

Q: Do Brachyspina carriers look different from normal?

No, they would not show any outward appearance of being a carrier.

Q: How is Brachyspina transmitted?

It is transmitted as an autosomal recessive, like CVM or BLAD. Mating a carrier animal (Bb) to a non-carrier animal (BB) would be expected to result in 50% of the offspring being non-carriers, and 50% being carriers.

	B	B
B	BB	BB
b	Bb	Bb

50% carriers (Bb)
50% non-carriers (BB)

Brachyspina is expressed when an animal is homozygous for the undesirable allele. If two carrier animals (Bb) are mated, it is expected that 25% of the offspring would be normal, non-carriers (BB), 50% of the offspring would be carriers (Bb), and 25% would be affected by Brachyspina (bb). Breeders are strongly recommended to avoid mating two known carrier animals.

	B	b
B	BB	Bb
b	Bb	bb

25% non-carriers (BB)
50% carriers (Bb)
25% affected (bb)

Q: What are the negative implications of Brachyspina on the Holstein breed?

Embryos affected by Brachyspina usually die, which has a large, negative impact on fertility. Those affected embryos that do not die early generally result in a stillborn calf.

When a carrier cow is mated to a non-carrier bull (or vice versa), then Brachyspina would not be responsible for reproductive problems.

Q: How common are Brachyspina carriers?

It is estimated that six percent of Holsteins are carriers for this condition.

Q: How do I know what animals are Brachyspina carriers?

A list of reported Brachyspina carriers, as well as tested non-carriers, is available at www.holsteinusa.com, under Pedigree Information > Genetic Codes/Traits. All animals that have been reported as tested for Brachyspina will have a label on their Official Holstein Pedigree (and other performance products). **Known carriers are labeled with BY, and tested non-carriers are labeled with TY.**

Q: How can Brachyspina carriers be identified?

A test for Brachyspina is available through Holstein Association USA at a cost of $100. Results are generally available in 30 days.

This linkage test identifies a group of genetic markers flanking the Brachyspina mutation that are co-inherited and can be used as an indirect test. Due to the nature of a linked marker test, there is a slight chance the result of an animal's test could change when a test for the causative mutation is available. Animals to sample include active and prospective AI bulls, ET donors and offspring of known carriers.

Q: What should I do if I have a calf born that I think was affected by Brachyspina?

Regardless of parentage or suspected cause, the birth of any deformed calves should be reported to Holstein Association USA by calling 800.952.5200, ext. 4225 or 4236.

If a calf is reported as being affected with Brachyspina, the pedigree is reviewed and testing material can be sent. In some instances, parentage genotyping may also be needed.

Q: What if an animal isn't labeled with either BY or TY?

If an animal is not labeled with either BY or TY, it can mean one of two scenarios:

a) The animal has not been tested for Brachyspina

b) The animal may have been tested but the results have not been reported to Holstein Association USA.

To inquire about the animal, it would be best to contact the owner or manager of the animal to check the status of any tests that have been performed. You may also use Holstein Association USA's free Family Tree Search to research if the animal has any BY or TY animals in its lineage that might give a clue as to whether the animal is a possible carrier.