

## 6 Common Genetic Tests for Dexter Cattle

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### Genotyping

The mapping of genetic markers within an animal's DNA to establish a unique identification like a fingerprint.

### Parentage Verification

Let's say two cows give birth one night near the same time and you suspect next morning they may have switched calves. Or your bull calf has grown up while you have been doing other things and has been in the pasture with the cows and your herd bull. You wonder if he has mated with some of the cows. Or a neighbor's bull got into your pasture while you were on vacation. It is breeding season and you wonder if HE will turn out to be sire of some of your calves.

With a few tail hairs of calf and suspected parents that you send in, a lab can get a genetic "fingerprint" of these animals. This fingerprint is known as a "genotype." If you do not want to beef or sell unregistered a calf that has unknown parents, or if you want to get a Certified Registration even if you know the parents, or you want to sell your calf to an ADCA member, this parentage DNA test is of use. An analyst at the lab will compare the "markers" obtained from the test and give you a probable answer to your parentage questions.

### PHA and Chondro

Pulmonary Hypoplasia with Anasarca (PHA) and Chondrodysplasia (Chondro ) are two different genetic disorders in the Dexter Cattle breed. Both can be disheartening and an expensive genetic problem, but both are avoidable.

If BOTH sire and dam in a mating "carry" (have one copy) of the gene responsible for chondro, there is a 1 in 4 statistical probability that they will BOTH contribute that gene to a fetus, causing its death as a "bulldog calf" which may be aborted before term or show up as a misshapen mass that upsets the unsuspecting owner at birth. There is a 2 in 4 chance that only one parent will give the gene, creating a "chondro carrier" calf, also known as a "shortleg," a body type some people find very appealing. And there is a 1 in 4 chance that neither parent will pass on the gene, producing a "normal" or "longleg" Dexter calf.

The same statistical probability works for the PHA gene. When the gene is contributed by BOTH parents (1 in 4 chance), the resulting swollen dead fetus may be called a "water baby" and may require a C-section to be extracted from the mother. 2 in 4 chance the calf will be a carrier, and 1 in 4 it will be normal with no effect of the gene. The PHA gene offers no known advantage in our cattle, but this does not mean that a carrier has no value. A PHA carrier with outstanding traits related to conformation, milk, temperament, color, or a number of other things desired by a knowledgeable breeder can be used to pass these on. Offspring can be tested, with normals saved to replace carriers over time. Hence, the value of testing.

Most breeders who have either gene in their herd choose to breed that "carrier" animal to a non-carrier animal. The statistics improve in such a case, yielding a 2 in 4 chance that the calf will be a carrier of whichever problem gene one parent can give, and a 2 in 4 chance that the calf will not get the gene at all

Let's say you bought some Dexters from someone who has inherited a Dexter herd but knows nothing about the records of the previous owner. You may want to know if an animal carries PHA or chondrodysplasia so that you can breed appropriately and avoid an aborted fetus. If records of the ancestors are unavailable or inconclusive, you need these test results for the Certified Registration, too.

## Verify Color

Possibly you want to know if a color that looks "different" is red or dun, or possibly if the animal is one but carries the other. So you would be interested in testing for color.

## Polled

Maybe you have mated a polled cow with the polled bull but you know that both are heterozygous polled and can have a horned calf. Your resulting polled bull calf is one that you think is the best bull prospect you've seen for years—could he be homozygous polled so you will never get a horned calf if you use him?