

GENETIC INHERITANCE

RED & BLACK →→→

Genetic inheritance of red and black color is determined by only two color genes as presented in the diagrams. **Each individual has two color genes and will transmit one of these (completely at random) each mating.** A Black & White animal will transmit a black gene 100% of the time and a red gene 50% of the time. A Red & White animal will transmit a red gene 100% of the time. Black and the black gene (B) is **dominant** over Red and the red gene (r). This means that any animal with a black gene will be Black & White. It is important to remember that color genes are transmitted at random.

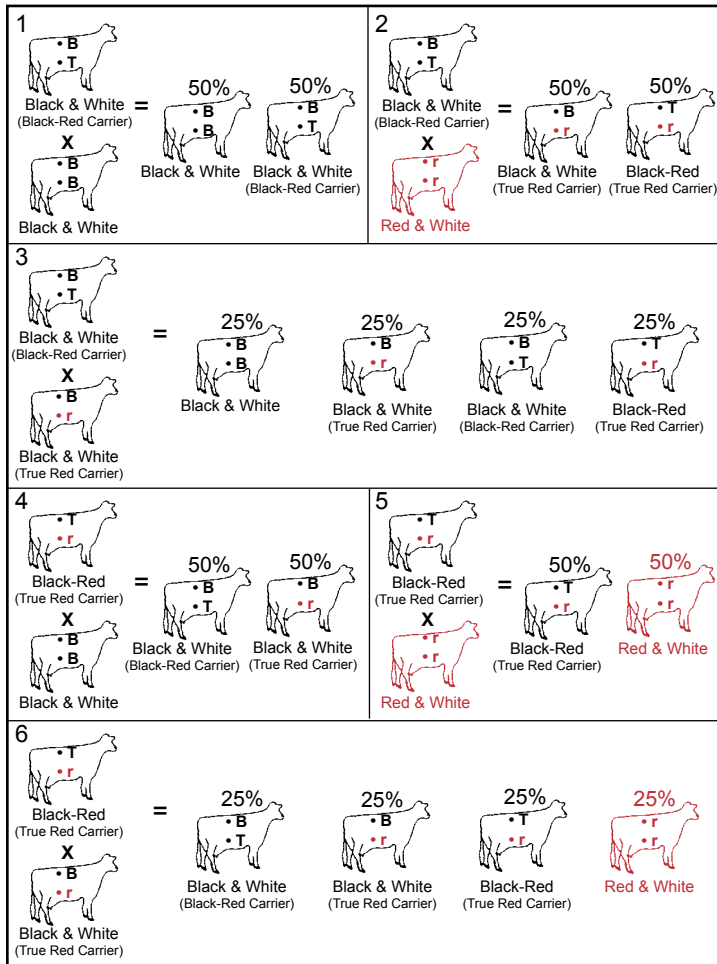
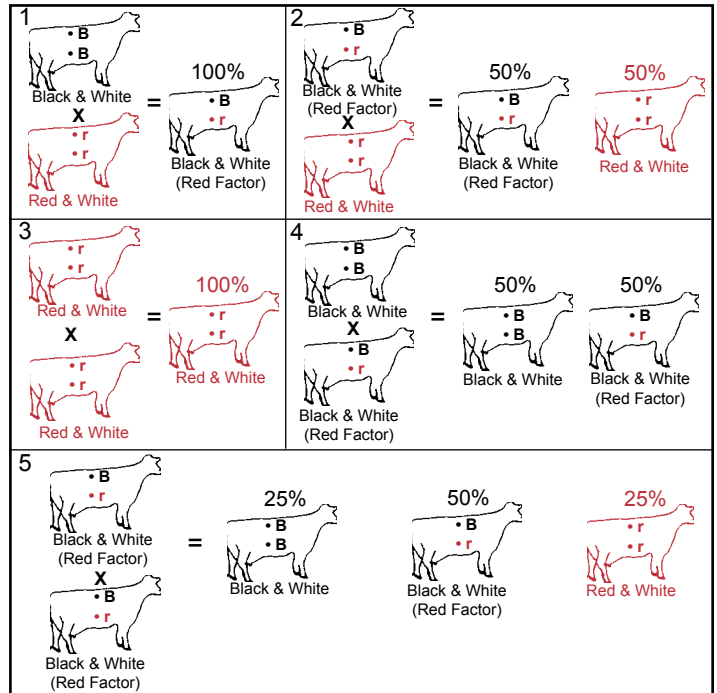
FREQUENT QUESTIONS

Are my animals stronger for red or red factor after a number of generations of breeding red? No. According to the genetic principles, all red factor animals have one red and one black gene and all red animals have two red genes, regardless of the generations of red breeding.

How can I determine if my Black & White carries red? (A) sire or dam is red (B) animal produces red offspring (C) genetic testing. Even if both the sire and dam are red factor, only 2/3 of the resulting Black & White calves will carry red -- see diagram 5.

My calf is off-color with a lot of brown or red hair. What does this color indicate? If the animal is not true Red & White, it is usually simply a Black & White. Often, Black & White calves do have a reddish or brownish tint. While this condition often is associated with red factor, it is not necessarily proof of red factor.

What about the *BC designation? There is a genetic factor which, when present, suppresses the black color gene and allows the red to be expressed. Go to the RWDCa website under genetic inheritance for more information. Presently, Mutant-Red*BC at Generations carries this factor. Some Red Mutant calves turn "blackish" (not black-red) with age.



POLLED & HORNED →→→

There is growing interest in the polled factor in dairy cattle. All breeds have some polled (naturally hornless) cattle. A number of Red & White breeders have shown a special interest in developing polled cattle. A large number of polled sires, both red and red factor, are currently available. Popular polled sires today include Lawnboy-P-Red and Ottawa-P-RC.

The gene for polled is a single, dominant gene (P) and the gene for horned is a single recessive gene (h), as shown in the diagrams. This makes the polled factor much easier to breed for than red color, with 50% of the calves being polled in the first generation when a polled sire is used. An animal with two polled genes is known as TRUE POLLED and **all** the offspring of such an animal will be polled. Most polled animals, including most sires with semen available, have one polled gene and one horned gene. Ottawa P-RC at ABS is a true polled sire. 100% of his offspring will be polled, diagram 1. A breeder who uses a polled sire in his herd of horned cattle will be making the mating shown in diagram 2. A breeder who is developing polled cattle will often make the mating shown in diagram 5.

The development of polled genetics in the Red breed is a definite breed advantage.

←←← BLACK-RED

This color is also referred to as "Telstar Red" after Roybrook Telstar, a main source of black-red, or as "taint", as in "taint red and taint black". In the diagrams, B = Black, T = Black-Red, r = Red.

Diagrams 1, 2 and 3 represent matings with a Black & White that carries the Black-Red color factor. No true red calves will result from these matings, according to our observations. Black & White sires that carry Black-Red include Hanover-Hill Inspiration-BR, Lancelot-BR and Maughlin Storm-BR. **Note that no true red calves result.**

Diagrams 4, 5 and 6 represent matings with a Black-Red that carries true Red. Red calves will result from such matings. Examples of Black-Red sires include Triple Threat and more recently, the sire Gillette Rubens Champion-Red-BR. A black-red sire will transmit true red 50% of the time.

This color pattern varies but in general refers to an animal that is born red and turns slowly black at a young age, usually 3-6 months. Black-Reds normally have reddish hair in the ears, around the muzzle and down the back. The belief that an animal born red will remain red is simply not true. Black-Reds usually have dark skin, black around the eyes and dark hair roots when born. Please note there is great variation in this color. Some black-reds remain mostly red while others turn almost completely black. There is also a "seasonal" change when animals exposed to prolonged sun become much redder in summer than in winter. Black-reds are **not** eligible for RWDCa-approved Red shows.

