

# Understanding Horned/Polled and Scurred Traits



Jack Ward

It seems as time moves ahead we've see more demand for Hereford genetics in commercial cow herds. Along with that, there have been many questions on the differences among homozygous polled (PP), heterozygous polled (Pp), homozygous horned (pp) and scurred animals within the Hereford breed. Let's take a look at these differences.

## The horned/polled trait

Scurred cattle are classified as polled since they do have a polled gene, and only polled animals can express the scurred trait. To understand the inheritance of the scurred trait, it is important to understand the genetics involved in how the horned/polled trait is inherited. Five keys to understanding include:

- 1) Polled is dominant to horned, so those animals that carry one gene for polled (PP) and one for horned (Pp) will be polled.
- 2) All offspring that are bred to a PP sire and a PP dam will be PP.
- 3) When a PP bull is bred to a Pp female, resulting offspring will be one-half PP and the other half will be Pp.
- 4) When a Pp bull is bred to a Pp female, resulting offspring will be one-quarter PP, one-half Pp and one-quarter pp.
- 5) When a Pp bull is bred to a pp female, resulting offspring are one-half Pp and one-half pp.

## Understanding scurs

Some polled cattle have scurs, which are incompletely developed horns that are usually attached to the skin and can be scab-like or can resemble horns. Having scurs is why the phenotypic condition is sometimes hard to identify.

Scurs are also genetic but different from the polled gene, and in bulls the gene for scurs is dominant. So, if a bull has scurs, he can be either heterozygous (Ss) or homozygous (SS), and if a female has scurs, she must be homozygous (SS). Cows that are Ss will be smooth polled. Scurs can only be seen in polled cattle because horned cattle hide the scurred gene. Here are some mating examples:

- 1) If you have a scurred cow (Pp for the horned/polled gene and SS for the scurred gene) and she is mated to a PP smooth polled bull (ss), all of the heterozygous polled bull calves should be scurred. More importantly, the bull calves produced from this mating that are not scurred should be PP.
- 2) All of the females produced in this example would be smooth polled but would carry one dominant gene for the scurred trait and all calves of both sexes would either be smooth polled or scurred/polled because they would all receive a dominant gene for polled from the bull.
- 3) If a heterozygous scurred female is bred to a heterozygous scurred bull, all homozygous polled calves will not have scurs. All homozygous horned calves will not have scurs. The only scurred female will be heterozygous for the horned/polled trait and homozygous for scurs.

Here are some key points to remember:

- Breeders interested in polled cattle can ignore the scur trait except that it is an indicator that the animal is heterozygous for the horned/polled gene.
- Only cattle heterozygous for the polled trait (Pp) will express scurs.
- There is a test available for horned/polled in the Hereford breed. Visit the [Hereford.org](http://Hereford.org) "Education Center" for more information.
- The scurred gene is sex linked and is dominant in bulls and recessive in females.
- Animals may not express the scurred gene, but they may carry the gene and pass it on to their offspring. **HW**

Source: RR Schalles, Kansas State University