XYTOVET

TECHNOTE

POLL / HORN ANALYSIS

There are numerous welfare benefits to breeding polled livestock, for both the animal and the handlers. Traditionally, breeders relied on a visual assessment to determine the likelihood of a ram passing on their horn status to their progeny. DNA technology now makes that assessment easier and more accurate.

The basics of poll genetics

Poll status is completely controlled by genetics; there are no environmental influences that shape an animal's phenotype. The horned gene (H) is recessive, which means that a horned animal must carry the gene from both parents (HH). The other potential gene combinations are homozygous polled (PP) or heterozygous (PH).

Poll analysis with XytoVet

Poll analysis is included in XytoVet's Ovine 50K genomic test and Parent Verification analysis. Once genetic data is produced from a DNA sample, XytoVet sends it to Animal Genetics and Breeding Unit (AGBU) who conducts the poll test alongside the parent verification analysis. The results are returned to XytoVet and we will send them on to our clients. AGBU also send the poll results to Sheep Genetics to be included in the database.

The Poll test

We often comes across the misconception that the Poll test is definitive, but the results are actually suggestive. The Poll test is based on research conducted by the Sheep CRC Ltd using the Information Nucleus Program. The different alleles of the Single Nucleotide Polymorphisms (SNPs) selected were found to correlate with the presence or absence horns/polled phenotype in the animals of the Information Nucleus Flock. When using Horn/Poll genotype test information it is important to be aware that these SNP variations correlate with, and are not causative of, the horned or polled condition. This means that the differences in DNA that are identified in testing are not specifically responsible for the presence or absence of horns. Rather the differences identified in testing are suggestive of an increased likelihood of the presence or absence of horns. Consequently, whilst much better than no test at all, the test results may not be 100% accurate when compared with phenotype. Sheep Genetics Australia asserts that a homozygous PP sire (two copies) will have a 3% chance of producing horned progeny. Regardless, sires with a homozygous PP genotype will produce significantly more offspring with polled status than sires with a heterozygous poll/horned (PH) genotype or sires with a homozygous horned/horned (HH) genotype.