

## HOW TO “SCRAPIE-PROOF” YOUR FLOCK

### Use genotyping to your advantage (See [Genetics of Scrapie](#))

Producers can “Scrapie-proof” their sheep flock by breeding or purchasing only Scrapie resistant sheep (RR or QR at codon 171). Producers or their veterinarians can send samples from their sheep to a genotype testing lab to determine if their sheep are RR, QR, or QQ at codon 171. Genotype testing does not tell if a sheep has Scrapie but does tell if the sheep is susceptible or resistant to Scrapie. Sheep that are QQ genotype at codon 171 are susceptible to Scrapie and those that are RR or QR at codon 171 are resistant to Scrapie.



If you cull the QQ ewes and breed only RR and QR ewes and use only RR rams ([see below](#)) to breed, you can almost eliminate any chance that your sheep flock will become infected with Scrapie.

If you buy replacement ewes, look for a flock that uses only RR rams or have your replacements genotyped and only add RR or QR ewes to your flock.

**Genotype testing is not valid in goats and all goats are thought to be susceptible to Scrapie!**

### The Importance of using RR rams

If you’ve ever studied basic genetics in school, then you probably remember these Chi square quadrants:

	Ram Q	R		Ram Q	R		Ram R	R
Ewe Q	QQ	QR		QQ	QR		QR	QR
R	QR	RR		QR	QR		QR	QR

In the first example, the ewe and the ram are both QR and are resistant to Scrapie infection. The Chi square shows all the possible outcomes of the offspring: 50% will be QR, 25% will be RR, and 25% will be QQ. This means that even with parents that are resistant to Scrapie, one quarter of the offspring born to this pairing would be QQ and susceptible to Scrapie.

In the second case, using the same QR ram on a ewe that is QQ, the outcome is even worse, with half of the offspring being QQ and susceptible to Scrapie.

But in the third case, using an RR ram even on QQ ewes, all offspring are QR and resistant to Scrapie. Producers can “Scrapie-proof” their flocks if they use only RR rams for breeding and save back their replacement ewes out of those rams. Over time as the old QQ ewes are culled and all ewes and replacement ewe lambs are QR or RR, your chances of having a positive Scrapie diagnosis in your flock shrinks to almost zero.

When purchasing RR rams, **(see [How Do I Find RR Rams?](#))** or any other breeding sheep for that matter, ask the owner for the official genotype test **(see [Official Scrapie Genotype Testing of Sheep](#))** results for the sheep you intend to buy.