

Enhancing resistance against TSEs

Transmissible spongiform encephalopathies, also known as prion diseases, remain a threat to both animal and human health. We spoke to **Dr Jan Langeveld** of the GOAT-TSE-FREE project about their research into the susceptibility of goats to certain types of TSEs, work which could boost efforts to breed for resistance against the diseases

A group of diseases that affect the brain and nervous system of animals and humans, transmissible spongiform encephalopathies (TSEs) are a major health concern. The BSE crisis in the UK is perhaps the most prominent example of public health concern around TSEs, but they can also affect other animals as well, an area the GOAT-TSE-FREE project is addressing.

"The project follows up a very large European study which looked into how susceptible goats are to diseases like scrapie and BSE. We are trying to strengthen the scientific basis of our knowledge in this area," explains Dr Jan Langeveld, the project's scientific coordinator. The project is also working with goat farmers and breeders to investigate and enhance resistance to these diseases. "Over the last ten years we've found that it is possible to breed for resistance to TSEs. You can also breed for resistance to scrapie – which we can find in goats – while we have also looked at resistance to BSE," continues Dr Langeveld.

Breeding for resistance

These different types of TSEs are fairly rare in goats, but the effects of even a single case can be extremely serious. The disease occurs every year in some parts of Southern Europe, and under current rules all the goats in a herd have to be culled if they aren't resistant, underlining the importance of the research in Dr Langeveld's international team. "If we can prevent that culling by breeding for resistance then we have gained something. We've gained more security for farmers, and also in the food chain," he points out. Only one variant form of a specific gene is needed to carry resistance to TSEs. "For this disease you can just breed for one gene. If you find that variant in the population, even in only a small proportion of goats, then you can use these goats to breed for more carriers. The more carriers the lower the disease transmission," explains Dr Langeveld.

GOAT-TSE-FREE

(Towards breeding of goats for genetically determined TSEs resistance.)

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Jan Langeveld, PhD is a prion scientist at Central Veterinary Institute of WageningenUR at Lelystad Netherlands. He is leading this broad European project together with the three DVMs: CVI colleague Lucien van Keulen, Pier Luigi Acutis at IZSTO Torino, and Cristina Acin at UNIZAR Zaragoza.

From left to right: Pier Luigi Acutis, Jan Langeveld, Cristina Acin and Lucien van Keulen.

