

Stressed sheep fleeced for their genes

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Genetics play a large factor in determining the temperament of sheep and how they react to stress, a study carried out by The University of Western Australia has found.

The scientists analysed sheep DNA and found the changes in sequences

of Tryptophan Hydroxylase gene could alter the protein structure of this enzyme, ultimately affecting how our woolly friends respond to stress.

Lead researcher Ph.D. student Luoyang Ding from the UWA School of Agriculture and Environment and the UWA Institute of Agriculture said the [scientists](#) focused on [genes](#) linked to [serotonin](#) and oxytocin (the chemicals that make us feel happy), under the supervision of Associate Professor Dominique Blache, Professor Shane Maloney, Associate Professor Jennifer Rodger and Professor Mengzhi Wang.

"We found the gene markers (the special changes in Tryptophan Hydroxylase sequences) linked to the production of serotonin resulted in sheep that were calmer in nature and dealt with stress better," Mr Ding said.

"By sequencing Tryptophan Hydroxylase gene in sheep at an early age, we can get an indication of their stress levels and what could come later on as the sheep get older."

Mr Ding said one big problem in farming was that stress in animals made practices more costly and time consuming and it was more difficult to care for stressed animals.

"The quality of the meat is also severely impacted by [stress](#), with anxious sheep producing much tougher, darker and drier meat," he said.

"We hope these findings can help farmers improve the care of sheep and farming efficiencies by being able to understand the temperament of their [sheep](#) at an early age."

Mr Ding said it would also be interesting to find out if the gene markers could be used to estimate the risk of anxiety early on in humans.

"It is clear that there is a definite chemistry at play in individuals who get stressed or anxious easily," he said.

"It would be interesting to explore whether genetic testing at an early age could predict people who may be susceptible to vulnerabilities later in life."

Provided by University of Western Australia

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