

NEWS RELEASE

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Breeding for resistance best insurance against worms

Sheep breeders pursuing worm 'resilience' rather than 'resistance' could be placing undue pressure on their sheep during the current dry seasonal conditions.

According to Executive Officer of the WormBoss program, Dr Lewis Kahn, sheep breeders selecting better grown sheep are indirectly selecting for worm 'resilience' but this does not improve worm 'resistance' because they are separate traits.

"Resilient sheep are those that grow and perform well despite infection from parasitic worms, whereas resistant sheep have a lower level of worm infection because of a better immune response," Dr Kahn said.

"Resilience is difficult to measure because it is the difference in production between worm-free sheep and when the same sheep are infected. It represents the cost of worm infection not the animal's ability to resist infection.

"And while resilience in sheep is desirable, it has a very low level of heritability, with little benefit passed to the next generation of the flock."

Dr Kahn said worm resistance was considerably more heritable and could be improved by using Australian Sheep Breeding Values (ASBVs) for faecal worm egg count (WEC).

"Where producers are selecting sheep for production under normal levels of worm challenge, research has demonstrated that this will also select towards worm resilience," he said.

"In contrast, worm resistance doesn't come from selecting for production and needs to be separately measured.

"While 'resilient' sheep may be little affected by their own worm population, the worm eggs they deposit in faeces onto pasture provide contamination that places susceptible sheep at greater risk.

"And when the chips are down and feed is short, like it is in many areas at the moment, the capacity for resilience is greatly diminished and these sheep are less able to cope with the additional stress of parasites."

The WormBoss program was developed in 2005 by the Cooperative Research Centre for Sheep Industry Innovation (Sheep CRC) and Australian Wool Innovation (AWI).

Since then the WormBoss website, www.wormboss.com.au, and the WormBoss training workshops have been delivered to producers and industry advisers to help industry to reduce the cost of worms through tactics including grazing management, breeding for worm resistance, managing for production targets, using effective drenches and managing drench resistance.

"Commercial sheep producers can identify candidate sires for purchase based firstly on the productive traits they need and then from within this group purchase those with the most negative WEC ASBV. This ensures both productive and worm resistant sires and excludes those sheep where resistance comes at the expense of production," Dr Kahn said.



An Australian Government Initiative



It's an approach supported by the President of the Australian Association of Stud Merino Breeders, Phil Toland, who said that while more research was needed into how sheep and worms interact, the current evidence was clear that the best insurance for a sheep flock against worms was to breed for resistance.

"I hear breeders saying they have sheep with high egg counts that are their best doers in their flock and are therefore resilient to worms, but there could be other reasons why that sheep is a good doer," Mr Toland said.

"For me the bottom line is that resilient sheep might cope pretty well with worms, but they are still breeding worms which will affect the weaker sheep in the flock, whereas resistant sheep won't support worm populations.

"Because resistant sheep are not facing this additional stress on their bodies, these are sheep that are more likely to do better in dry times."

Mr Toland runs Toland Merinos, at Violet Town, Victoria, an 800-hectare property with an average annual rainfall of 625mm. The local environment is suited to the parasitic worms *Teladorsagia* (brown stomach worm) and *Trichostrongylus* (black scour worm).

Mr Toland has been taking worm egg counts on his 4500-head flock, which includes 1200 stud ewes, for more than 10 years, while at the same time selecting heavily for worm resistance as part of the breeding program.

"As well as selecting rams with a negative WEC ASBV, we cull heavily for animals showing scours or dag," he said. "Breeding for resistance can take a long time, but we've noticed with our flock that animals with high or positive WEC scores are often the first sheep dirty with scours."

Mr Toland said that his worm populations have declined dramatically and his reliance on drenches has been greatly reduced delivering significant savings in terms of dollars, time and labour.

"At the end of the day I want sheep that are both resistant and resilient – that is, I want sheep that don't carry worms but can also cope with life's stresses and strains and remain productive," he said.

- For more information on breeding sheep for worm resistance visit www.wormboss.com.au.

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Caption: Sheep CRC board member and WA farmer Rob Egerton-Warburton with Executive Officer of the WormBoss program, Dr Lewis Kahn.

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