

Gulbali Stories — Sheep Heat Stress Supplement Trial

Feeding Licks in sheep feedlots

Guest: Dr Susan Robertson & Jim Meckiff | Host: Christine Storer

Welcome to Gulbali Stories, where we share inspiring tales of innovation, resilience and sustainability in agriculture, water and the environment from Australia and beyond.

Christine Storer

Welcome to a podcast on the results of experiments that have been run under the Climate Smart Agriculture Program for the Natural Heritage Trust. These results were presented at the MerinoLink workshops in New South Wales and Victoria in 2026, and the aim was to make sheep farming more sustainable with heat stress in a variable climate and make it more profitable. And we have our livestock expert Susan Robertson from Charles Sturt University and sheep production advisor Jim Meckiff from JM Livestock to explain the results and the questions that came through in the workshops, Susan.

Dr Susan Robertson

Yeah, thanks Christine. So, this was the second study that we ran, and it was concerning lot feeding of lambs — so feeding lambs to gain weight to slaughter weight basically, so it was different from confinement feeding. So, the question we asked ourselves was: can licks with novel supplements increase growth rates and profit? The focus of this study was on improving the resilience to heat stress, because often we'll be lot feeding lambs over the summer period when they are likely to be under hot conditions, and that causes a reduction in feed intake and poor growth rates.

So, what we did was fully replicate an experiment with three replicates of four different treatments. All the treatments got the same base ration, which was 60% barley, 20% lupin and 20% straw. So, the treatments were, firstly, a control — so we just added 1% lime and 1% salt mixed within the grain. The second treatment was a standard lick, so this was a standard Pro Lamb lick provided by Four Seasons Company, so that's a molasses-based lick. The third treatment was that same lick with Algimun added — Algimun is a novel seaweed extract which has been found to mitigate heat stress in other species but not sheep, so we wanted to test it in sheep. And the fourth treatment was again the same Pro Lamb lick, this time with betaine added — betaine being an amino acid which is commercially available and somewhat used in particular intensive industries to mitigate heat stress.

So, the results — you can see on the website on the graph — so basically all the lambs started off at around about 45 kilos, and after a 70-day feeding period, well, the lick treatments were up around 60 kilos, but the control treatment was only around that 54-kilo mark. So, there was a big treatment effect, with the lick treatments all growing considerably faster than the control treatment.

The lick intake was about 120 grams per day in the lick treatments, and I have to say that the growth rate of the control lambs was well below what you would expect — it was only about 180 grams per day over the entire feeding period, and you'd really want significantly

more than that in a commercial enterprise. Why was that growth rate so low — I'm not certain, possibly because we mixed the lime and the salt within the grain, and that may have reduced palatability. Secondly, we had 20% straw, and those control lambs certainly preferred the straw over the grain, whereas the lick treatments certainly preferred grain over straw and didn't eat all their straw allowance.

So, there was a big treatment effect — providing those lick blocks under these conditions certainly was profitable, so yeah, it was a good result.

Christine Storer

So, a profitable Susan in terms of production gain, and we'll do some future work on the economics.

Dr Susan Robertson

Yes, certainly. So, if you look at the — what — six kilo different, seven kilo different in liveweight at the end, you can either take those lick treatments out a month early to save a month on feed to get the 55-kilo liveweight, or you run them through and sell them at a heavy weight than the other control treatment.

Jim Meckiff

Yeah, great research, another good outcome here. There were no differences in the lick treatments — all three lick treatments gave a positive result over the control treatment of limestone and salt added to the grain. The mineral licks performed better — that's a good result over the limestone and salt. The less time, heavier weights, gives us a good economic outcome here, and the economic analysis will put further numbers on this.

Christine Storer

And so the queries about the reason why the control didn't work so well, with the mixture of the lime with the grain. So, Susan, what potential things might you do with these results in terms of understanding the detail further?

Dr Susan Robertson

We've taken some blood samples throughout this trial, and they are waiting analysis in the lab, so those blood tests will tell us the effect of the heat stress between the different treatments, so that will be useful information to interpret these findings. There was certainly a discussion as to whether mixing the lime and salt within the grain may have caused lower palatability, and that was the reason for these results. We would like to test, I think in future, the lime and salt mixed within the grain or fed as a loose lick compared to your Pro Lamb lick, to just retest that difference.

Christine Storer

And the other one, we had a question — if anyone's looking at the graph on the MerinoLink or the Gulbali Institute websites, although the sheep were randomly allocated to different groups, the Algimun lick group started off with slightly higher weight there, Susan. Was that significant?

Dr Susan Robertson

It does look higher on the graph, but it wasn't a significant difference — it's only one and a half kilos. And in any case, so with the Algimun treatment starting off slightly higher weight, it would still be higher weight than the control treatment at the end — again, with no differences at the end, it didn't make a difference.

Christine Storer

This treatment was run on January, February of 2026, and there were some very hot days, and as Susan said, there will be some more results coming from the blood tests, so watch out for the [website](#) and the [podcast](#) for more on this experiment and future experiments in the series.

Thank you for listening to Gulbali Stories. Discover more about research and partnerships at the Gulbali Institute at Charles Sturt University by visiting our website or following us on social media at #GulbaliInstitute. We look forward to sharing more stories with you soon.

Study 2. Lot-feeding lambs

Question: Can licks with novel supplements increase growth rates and profit?

All lick blocks increased growth rates, reduced time to 55 kg. Lick intake ~120 g/day.

