Fact sheet

Regulin to improving conception rates for summer joined ewes

Scale of heat stress at a national and state level

Each day > 32°C during the week of mating reduces lambing rate by 3.5%. Currently, heat stress costs the Australian sheep industry $168 million per year, increasing to an estimated $203 and $278 million as temperatures increases by 1° and 3°C, respectively. The impact of heat during joining on productivity of flocks in specific areas of South Australia is described in Figure 1.

Consequences of heat events on reproduction and reproductive rate

High ambient temperatures during the week either side of joining impairs oestrus, increases embryo loss, and decreases pregnancy rates and lambing rates. Heat exposure during pregnancy can retard fetal growth, reduce lamb survival and decrease weaning rates. Melatonin has a direct effect on the embryo and fetus, whilst also reducing oxidative stress, at a cost of $6.80 per implant, it has the potential to improve flock resilience.

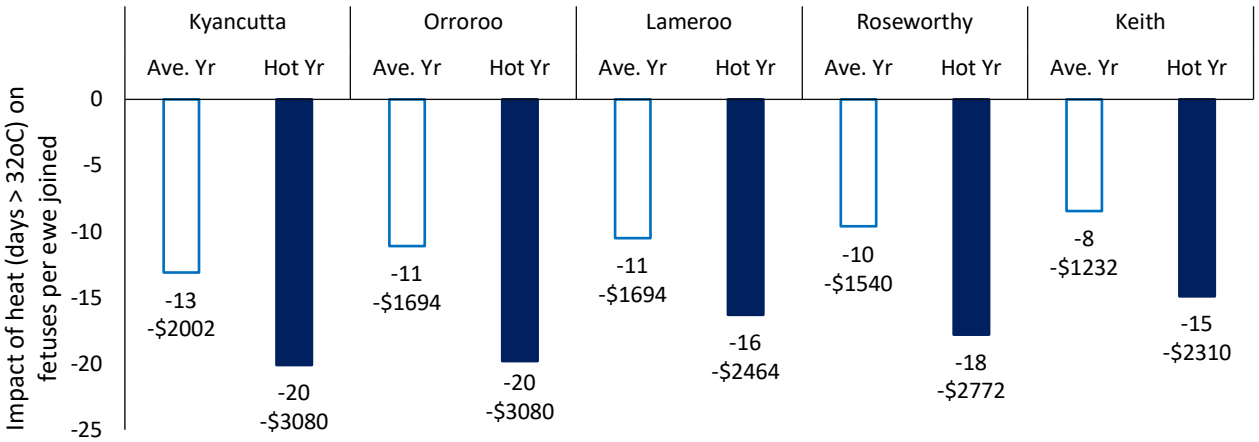

Figure 1: Impact of days ≥ 32 during joining on potential lambing rate (fetuses per ewe joined) in an average summer joining period and the hottest summer period since 1957. Financial loss due to the reduction in lambing rates that occur when 100 ewes are exposed to days ≥ 32 during the week of joining. Calculated for an average summer joining period and the hottest summer joining period since 1957. Assumptions: lamb price of $130 / head minus $21 COP / head and base line lambing rate of 140%.

Impact of melatonin on fertility of ewes during summer

Over the Summer of 2021/22 across 17 producer sites and 4096 ewes, and 19 producer sites and 6625 ewes in Summer 2023/24, these sites included Lameroo, Moorlands, Kyancutta, Wudinna, Georgetown, Keyneton, Cadgee, Mingbool, Field, Tungkillo, Ettrick, Carrieton, Mt Eba, Spalding, Caltowie and Orroroo. Half of all ewes were treated with a single subcutaneous melatonin implant (Regulin®) (administered at the base of the ear) at the time of joining. All ewes were managed in the same mob, and exposed to the same rams, in the same joining paddocks for the same length of time.

Table 1: Effects of a single melatonin implant administered at the time of joining compared to control ewes housed in the same paddock with rams, under the same conditions throughout joining.

	n ewes	% pregnant	% single	% multiple	Fetuses, % joined	Fetuses, % pregnant
Merino Mixed age ewes						
Control	7036	89	40	49	140	157
Regulin	6548	90	34	56	149	165
Merino Hogget ewes						
Control	1586	84	53	30	114	137
Regulin	1862	87	44	42	130	150
Merino all ewes						
Control	9677	83	43	39	125	149
Regulin	9784	85	37	47	136	159

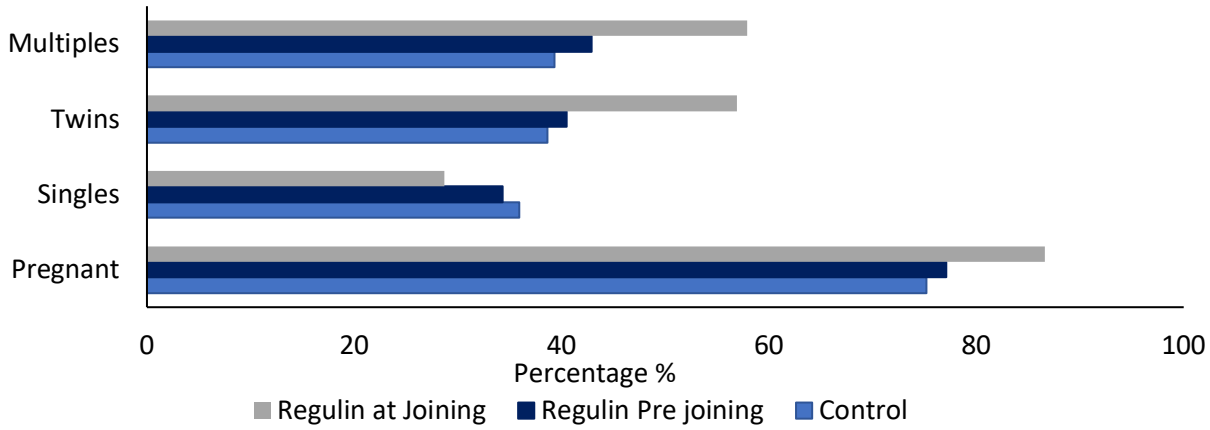

Figure 2: Comparison of pregnancy scanning outcomes between Merino ewes treated prior to or at time of joining with Regulin.

Key points to consider when using Regulin to improve conception in ewes

- Ewe condition at time of implant
- Predicted weather events throughout joining
- Age/ cohort of ewes to be treated
- Cost/benefit to treating ewes and/or rams
- Timing of implant (as close to joining as possible)

Outcomes

- ✓ Across all ewes Regulin improves pregnancy rates by **2.4%**, increasing twin bearing ewes by **7.7%** and multiple pregnancies by **8.3%**.
- ✓ Overall, this results in an **11.5%** increase in fetuses from ewes joined, and a **9.2%** increase from ewes pregnant
- ✓ Treating ewe lambs with Regulin resulted in the highest increase in fetal number, with **30 more fetuses present per 100 ewes** joined and **16 additional lambs** per 100 pregnant ewes
- ✓ For each 100 Hogget ewes treated with Regulin at joining, there were **15 more fetuses per 100 joined, and 13 more fetuses per 100** pregnant

Contacts

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