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Contents

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Sheep industry turn-off update

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Western Australia's sheep industry may be entering a period of flock stabilisation after several years of significant decline. While total sheep and lamb turn-off have fallen substantially during the first half of 2026, the reduction appears to be driven largely by producers retaining breeding stock rather than continuing the widespread sell-down seen in recent years.

Total sheep and lamb turn-off between January and June 2026 fell to 2.16 million head, down 29% from the same period in 2025 and below the 10-year average.

The decline was driven mainly by a sharp 55% reduction in adult sheep slaughter, while lamb slaughter fell by 10%.

Live sheep exports dropped by 95%, with only one shipment of 14,000 sheep exported to Jordan during the first half of the year. In contrast, interstate transfers increased by 66%, largely due to strong demand from eastern states.

The reduction in sheep slaughter suggests many producers are retaining breeding ewes rather than selling them, potentially signalling the end of recent flock declines. Increased lamb tag sales and stronger sheep prices also point to improved confidence and the possibility of flock recovery, although rising input costs such as fuel and fertiliser remain a challenge.

Read the full report in the Sheep Industry Update

Annual methane emissions profile for sheep grazing pasture in Southern Western Australia

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Introduction

Enteric methane (CH4) from livestock rumen fermentation is a critical global agricultural greenhouse gas (GHG) source, accounting for approximately 80% of Australian agricultural emissions (Hegarty & Kennedy, 2011). Developing scalable mitigation strategies whether nutritional, genetic, or management based require robust baseline data for accurate national carbon accounting. However, quantifying emissions in free range grazing systems is challenging due to high seasonal variability in forage quality and composition, which significantly alters rumen fermentation pathways (e.g. volatile fatty acid ratio) and makes static pen feeding models inadequate.

This study aimed to address this knowledge gap by establishing a continuous, year-round CH4 emission profile for Merino sheep under dynamic grazing conditions typical of Southern Western Australia (WA) using non-invasive GreenFeed (GF) technology. Specifically, we aimed to 1) quantify individual daily CH4 emissions across distinct seasonal phases, 2) relate emission rates to changes in pasture type, and 3) generate a robust, region-specific dataset to inform future mitigation research and enhance carbon accounting frameworks.

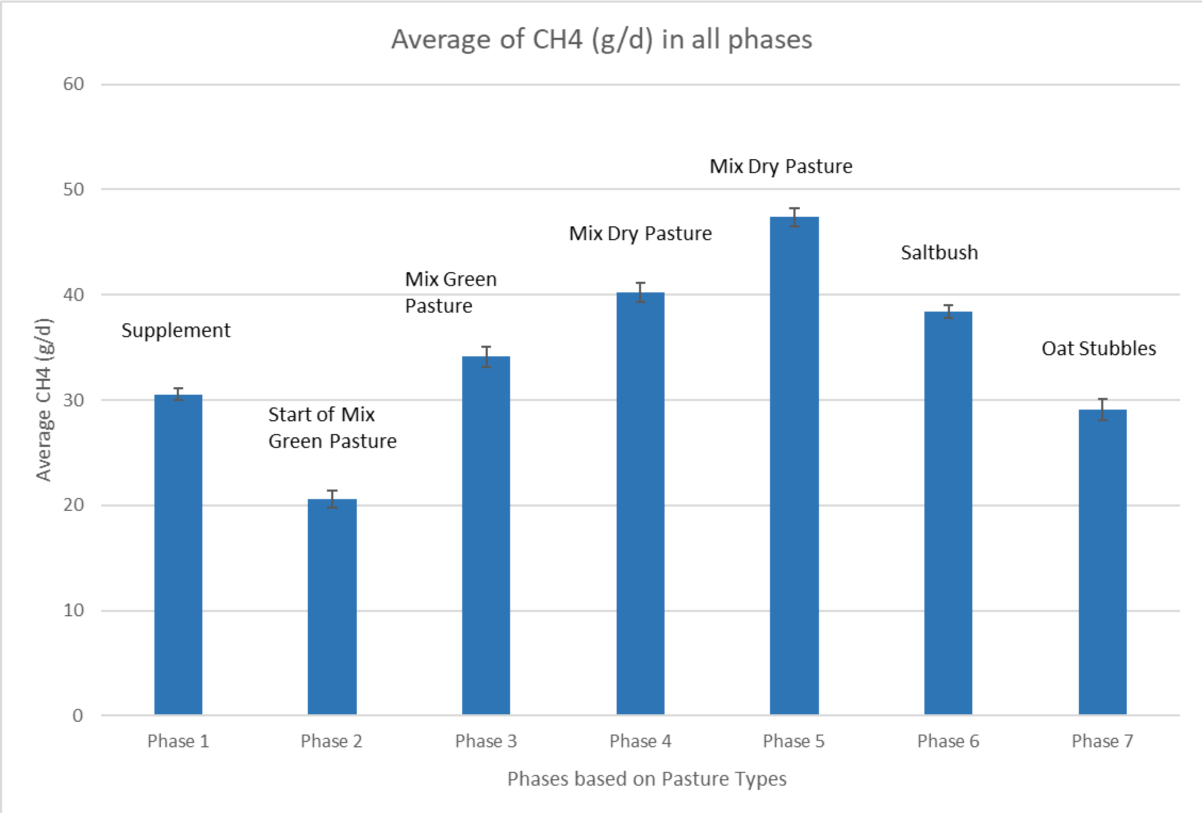
Materials and methods

This ~13 month longitudinal study was conducted at the Katanning Research Station (KRS) in Western Australia, utilising a cohort of 58 young Merino sheep (43 ± 0.3 kg average liveweight at start plus standard error) managed under typical grazing practices (average stocking rate 4.0 dry sheep equivalents per hectare) throughout the trial period.

The study was strategically divided into seven, ~60 day phases to capture regional shifts in feed quality and quantity: Phase 1; cereal oat stubble/supplementation, Phase 2; early start of green mixed pasture, Phase 3; green mixed pasture, rye grass, sub clover and cape weed, Phase 4; start of dry mixed pasture including rye grass, sub clover and cape weed, Phase 5; dry pasture including barley with anameka, Phase 6; anameka saltbush and Phase 7; oat stubbles as additional short period (~30 days).

Individual animal emissions of CH4 and CO2 were measured across all phases using non-invasive GF units (C-Lock, USA; which trains sheep for voluntary visits). A small feed reward of lupins (~10g per visit with 4 to 5 visits/day) representing approximately 4% of estimated intake. Liveweights (LW) and condition scores (CS) were measured at the start and end of each phase. Overall, 38 sheep (65%) visited the GF frequently enough for inclusion in the analyses.

Mean daily CH4 emissions across the six seasonal grazing phases were analysed using a General Linear Model for repeated measures, with daily CH4 fitted as the response variable and phase as a fixed effect, and LW and CS included as covariates. LW and CS were analysed separately using the same model.



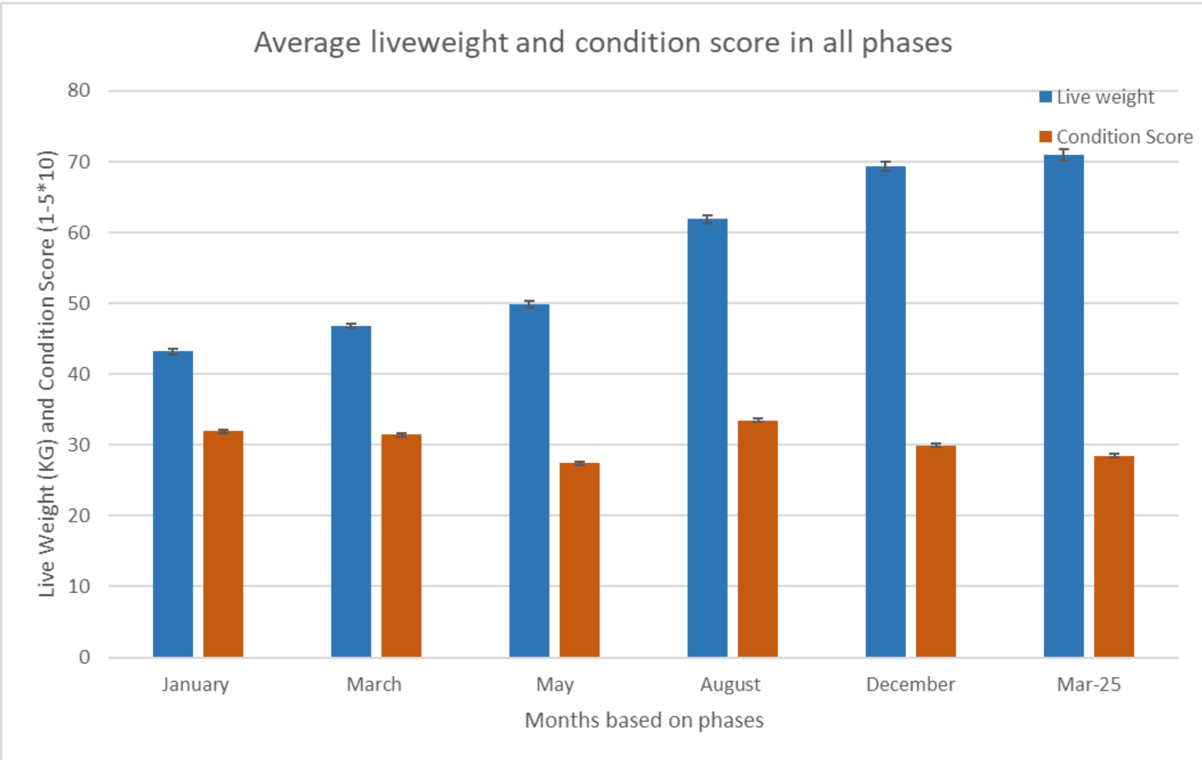


Figure 1. The average CH4 g/d within each pasture phase detailed in material and methods (top graph) and liveweights (kg) and condition score for all phases (bottom graph).

Results and discussion

The study area consisted of a stable, mixed pasture composition throughout the year.

Significant differences (*P* < 0.005) in mean daily CH4 emissions were observed across the six grazing phases. CH4 was significantly lower (28.4 ± 0.51g/d) during the green pasture phases (2 and 3; April–August) compared to the dry pasture phases (4, 5 and 6; 41.9 ± 0.52g/d, September–March), which is likely due to higher digestibility and lower fibre content of green forage altering rumen fermentation pathways. These seasonal fluctuations in mean daily CH4 production provide new information for establishing reliable regional emission factors.

Anameka saltbush showed potential as a supplementary feed during dry conditions over the 60-day dry-feeding phase with only minor supplementation from the GreenFeed (approx. 40-50 g/hd/day of lupins) achieving LW and CS maintenance.

These seasonal shifts directly reflect changes in pasture quality; the highly digestible green mixed pasture (phases 2 and 3) supported lower emissions than the more fibrous, mature dry pastures (phases 4 to 6). Therefore, the methane profile is driven by the specific nutritional composition and fibre content of the available forage rather than just the time of year. Overall, the continuous increase in LW and maintenance of CS throughout the year studied suggests that CH4 variability was influenced by dietary factors and not constrained entirely by productive potential.

This project delivers the first continuous, individual animal dataset of methane emissions for grazing sheep in Western Australia, providing a crucial baseline for refinement at KRS and guiding the design of future mitigation experiments, and targeting feed and genetic based strategies for the WA sheep industry.

References

Hegarty RS and Kennedy JL (2011) Animal Production Science. 51(2): 101–108.

Yardstick merino sire evaluation: 2025-drop update and upcoming field day

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Introduction

The Yardstick Merino Sire Evaluation is Western Australia's central Merino sire evaluation trial. Its purpose is to provide independent and objective comparisons of progeny of Merino sires under the same environmental and management conditions. By evaluating the performance of progeny from a range of sires joined to a common ewe base, breeders can make more informed ram selection decisions based on measured genetic performance rather than visual assessment alone.

The Yardstick trial is a partnership between the Department of Primary Industries and Regional Development (DPIRD) and the Federation of Performance Sheep Breeders of Western Australia (FPSBWA) under the guidance of the Australian Merino Sire Evaluation Association (AMSEA). Two link sires are included each year that are provided by AMSEA which provide genetic linkage between evaluation sites and years across Australia. All raw data collected is submitted to AMSEA for further analysis, and the adjusted data is then circulated to entrants and the wider public by FPSBWA.

Each year approximately 600 ewes are artificially inseminated with semen from 12 nominated sires, producing 600–700 progeny for evaluation. Progeny are measured from lamb marking through to hogget age, with more than 35 production, wool, carcase and visual traits recorded.

New funding opportunities have enabled us to collect measurements on sustainability traits including feed conversion efficiency and methane production using the Sheep Feed Intake Facility (SFIF) at DPIRD's Katanning Research Station. This will enable adjusted sire means and flock breeding values for these sustainability traits to be developed. This data will be presented for the 2024-drop Yardstick progeny at the upcoming Sheep Field Day on 15 October (more on this further on).

Explanation of traits and stage codes reported

Data was collected for the 2025-drop progeny. The age codes reported are below:
M: Marking – 14 to 39 days (2 to 6 weeks)
W: Weaning – 40 to 149 days (6 weeks to 5 months).
P: Post-weaning – 150 to 299 days (5 months to 10 months)
Y: Yearling – 300 to 449 days (10 months to 15 months)

The abbreviations for the measurements are listed below:
Wt: Body weight (kg)
WEC: Worm Egg Count (%)
EBRWR: Early Breech Wrinkle (1-5)
EBCOV: Early Breech Cover (1-5)
EMD: Eye muscle depth (mm)
YFAT: Yearling fat depth (mm)

Adjusted sire means and flock breeding values

Raw data is not published as there is no adjustment for factors including the progeny's birth type (single, twin or triplet), rear type, sex, age of dam and the number of progeny a sire has in the analysis. Instead, the data is reported as Adjusted Sire Means (ASM) which is adjusted data that corrects for these factors. These adjustments improve the accuracy of the result and adjustments are based off the actual influence of these factors on the drop. No account is made for trait heritability and genetic correlations between traits. Comparisons can then be made on the progeny of each sire based on the genetic differences of these factors within the drop. The data is reported as an ASM for each sire as well as a progeny group average at the bottom of the table.

Flock breeding values (FBVs) are another type of data reported. FBVs are calculated from data recorded within-site and within-drop and express the expected genetic performance of a sire relative to another sire in the evaluation when mated to the same standard of ewes. Use of FBVs allows for further improvement in the accuracy of sire results as there is additional adjustment to account for the association between traits and heritability of traits. FBVs are expressed as a deviation from the progeny of the average sire used in the drop at an individual site and the average sire is set as zero.

Results

Adjusted Sire Means

The 2025-drop progeny were weaned on 14 October 2025 and had an average weaning weight of 29.3 (Table 1). Weaning weight ranged from 27.4 to 30.6 kg. Yearling weights were done on 27 May 2026 and ranged from 40.9 kg to 48.4 kg with an average of 44.5 kg. EMD ranged from 21.1 to 25.6 with an average of 23.4mm. YFAT ranged from 1.9 to 3.0 mm with an average of 2.4 mm. The sires that were the 3 top trait leaders are identified with the blue highlight in the following tables.

Table 1: Weight, Eye Muscle Depth and Fat Depth – Adjusted sire means

Sire	No. progeny	WWT (kg)	YWT (kg)	EMD (mm)	YFAT (mm)
Anderson Poll, 220417	55	30.0	48.4	25.6	2.9
Benefield Poll, 200055 (link sire)	51	29.3	43.3	22.5	1.9
Billandri Poll, 230524	42	30.2	45.6	23.8	2.5
Boolading Blues Poll, 230438	55	29.4	43.1	23.6	2.6
Coromandel Poll, 240139	55	29.2	45.8	23.3	2.3
Darkan RBC Poll, 210335	46	29.8	47.3	24.8	3.0
Edale, 22Z121	54	30.0	45.0	23.0	2.4
Ejanding Poll, 215492 (link sire)	54	29.9	45.6	24.5	2.6
Glenerin, 230446	55	27.4	41.3	22.8	2.5
Hazeldean, 000440	50	27.8	41.8	22.6	2.1
Wattle Dale, 222094	57	30.6	45.4	23.1	2.3
Wiringa Park Poll, 241400	50	28.0	40.9	21.1	2.0
Progeny group average	**52**	**29.3**	**44.5**	**23.4**	**2.4**

The 2025-drop progeny were marked between 12–14 August 2025 at approximately 4 to 6 weeks of age. The average breech wrinkle was 2.7 and the average breech cover was 3.1 (Table 2). Breech wrinkle ranged from 1.7 to 3.3 and breech cover ranged from 2.9 to 3.5.

Table 2: Visual traits assessed at lamb marking – Adjusted sire means

Sire	No. progeny	EBRWR	EBCOV
Anderson Poll, 220417	55	2.0	2.9
Benefield Poll, 200055 (link sire)	51	1.7	2.9
Billandri Poll, 230524	42	3.1	3.3
Boolading Blues Poll, 230438	55	3.0	3.2
Coromandel Poll, 240139	55	2.7	3.2
Darkan RBC Poll, 210335	46	2.5	3.1
Edale, 22Z121	54	3.3	3.2
Ejanding Poll, 215492 (link sire)	54	2.8	3.2
Glenerin, 230446	55	2.8	2.9
Hazeldean, 000440	50	2.9	3.5
Wattle Dale, 222094	57	3.3	3.2
Wiringa Park Poll, 241400	50	2.7	3.2
Progeny group average	**52**	**2.7**	**3.1**

Flock breeding values

The weaning weight FBVs ranged from -4.1 kg to +2.6 kg (Table 3). FBVs can be used only within-drop to predict how the progeny of a sire will perform. For example, when 2 sires are joined to an evenly classed line of ewes, the difference between their breeding values is first calculated. When comparing a ram with a WWT of +2.6 kg to a ram with a WWT of -4.1 kg, there is a 6.7 kg difference. Based on 50% of the ram's genes contributing to the offspring, the progeny of the +2.6 kg ram would be 3.4 kg heavier at weaning than the progeny of the -4.1 kg WWT ram. Further, YEMD ranged from +1.9 mm to -2.3 mm and YFAT ranged from +2.4 mm to -2.6 mm.

Worm egg counts (WEC) were measured for individual animals at weaning (Table 3). WEC behaves differently to other traits as it is generally not normally distributed and can be extremely right skewed, with lots of zeros and the variation increases with the mean. Hence an ASM doesn't represent the average of a sire group. In the analysis of the WEC data, additional mathematical calculations are used to transform the data prior to analysis. The resultant FBV better reflects the average of the progeny of any one sire and is expressed as a percentage in relation to the average ram (set at 0). Lower numbers are more desirable, and the 3 traits leaders are highlighted in blue. There was a large variation with the lowest WWEC minus 89% and the highest WWEC +46%.

Table 3: Weight, EMD, YFAT and WEC flock breeding values

Sire	WWT (kg)	YWT (kg)	YEMD (mm)	YFAT (mm)	WWEC (%)
Anderson Poll, 220417	1.8	8.3	1.9	1.3	-89
Benefield Poll, 200055 (link sire)	-0.2	-2.4	-1.0	-2.6	0
Billandri Poll, 230524	1.9	3.0	0.1	-0.2	22
Boolading Blues Poll, 230438	0.0	-3.1	0.9	1.7	24
Coromandel Poll, 240139	0.1	2.9	-0.7	-1.1	-9
Darkan RBC Poll, 210335	1.6	5.5	1.1	2.4	-3
Edale, 22Z121	1.2	0.8	-0.8	-0.4	46
Ejanding Poll, 215492 (link sire)	0.9	2.7	1.3	0.6	25
Glenerin, 230446	-4.1	-6.7	0.7	1.9	-9
Hazeldean, 000440	-3.0	-6.1	0.0	-0.8	39
Wattle Dale, 222094	2.6	2.4	-1.1	-1.4	30
Wiringa Park Poll, 241400	-2.8	-7.2	-2.3	-1.4	8

The FBVs for early breech wrinkle ranged from -1.78 to +1.12 indicating there was about 3 whole scores difference between the progeny of the sires (Table 4). Further, FBVs for early breech cover ranged from -0.42 to +0.51 with about a whole score difference between the progeny in breech cover. Another breech wrinkle and breech cover assessment will be done following hogget shearing.

Table 4: Early breech wrinkle and early breech cover flock breeding values

Sire	EBRWR	EBCOV
Anderson Poll, 220417	-1.34	-0.42
Benefield Poll, 200055 (link sire)	-1.78	-0.42
Billandri Poll, 230524	0.78	0.17
Boolading Blues Poll, 230438	0.52	0.02
Coromandel Poll, 240139	-0.08	0.08
Darkan RBC Poll, 210335	-0.38	-0.07
Edale, 22Z121	0.92	0.20
Ejanding Poll, 215492 (link sire)	0.01	0.03
Glenerin, 230446	0.17	-0.42
Hazeldean, 000440	0.13	0.51
Wattle Dale, 222094	1.12	0.18
Wiringa Park Poll, 241400	-0.06	0.13

Next steps

The progeny were classed for a range of wool and conformation traits back on 1 September and had a mid-side wool sample taken and sent for analysis. This data is currently being analysed and ASMs and FBVs will be developed for this data. All data collected to date will be put on pen cards and summarised into a report. The progeny will be drafted into sire groups and displayed at the upcoming sheep field day on 15 October 2026. Anyone seeking further information is invited to attend the sheep field day.

More information

To register for the sheep field day, visit the Humanitix website. For more information on Yardstick, visit the Merino Superior Sires website or the Yardstick webpage on the DPIRD website.

Help improve annual ryegrass toxicity (ARGT) surveillance in Western Australia

Annual Ryegrass Toxicity (ARGT) remains an important risk to livestock production and hay industries in Western Australia. Although the incidence of ARGT declined by the early 2000s, recent diagnostic results and producer reports suggest ARGT incidence and distribution may be changing. Combined with changing farming systems and seasonal conditions, there is a need to improve our understanding of where ARGT occurs, and where it doesn't, to better support future surveillance and risk prediction.

DPIRD has commenced the Modernising Detection, Risk Prediction and Management of Annual Ryegrass Toxicity in Western Australia project to improve ARGT surveillance, better understand current producer practices, and support the development of future risk prediction tools.

A key part of the project is a 5–7 minute producer survey. We are seeking input from producers across all farming systems where annual ryegrass occurs, including livestock, cropping, dairy and hay enterprises. Even if you have never experienced ARGT, your responses are just as valuable in helping us build a more complete picture of ARGT risk across WA.

Survey participants can also register their interest in receiving a **free ARGT sampling kit** (limited numbers available).

Complete the survey.

Stuck in the boot: What the research says about slow panicle emergence in hay oats

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Gibberellic acid trials show no harm to hay yield or quality, but getting the timing right is still the missing piece.

As growers walk paddocks ahead of cutting, some will find oat crops where the panicle hasn't cleanly emerged from the boot. It's a familiar problem in seasons where warm, dry weather arrives quickly and soil moisture runs short. Some hay oat varieties struggle to push the panicle out of the leaf sheath, and it may only partially emerge before the top florets reach the optimal cutting stage (watery ripe, Z71).

That leaves growers with an unwelcome choice: delay cutting and hope the panicle fully emerges, or cut on time and accept a longer, less even cure.

Neither option is ideal. Delaying cutting means water-soluble carbohydrates (WSC) decline and fibre rises. Cutting on time means the biomass bunched in the boot dries more slowly than the rest of the plant, extending curing and causing uneven dry-down. That leaves the crop exposed to the weather for longer and increases the risk of weather damage. The pockets of trapped moisture, combined with the often-higher sugar content of moisture-stressed hay, also raise the risk of heating and combustion in stacks. That is a real concern for growers and buyers alike.

What the trials found

The National Hay Agronomy (NHA) project, a co-investment by the AgriFutures Australia Export Fodder Program and the Department of Primary Industries and Regional Development (DPIRD), trialled gibberellic acid (as ProGibb® SG) at four sites. Treatments were applied at stem elongation (Z31–32), at flag leaf emergence (Z37–39), or at both timings.

Gibberellic acid did lengthen the stem, but it lengthened all the internodes rather than just the one that matters. The result was a taller plant overall, not a longer peduncle. The peduncle is the top stem segment just below the panicle, and it must stretch to free a stuck panicle.

The good news is that ProGibb® SG had no negative effect on hay yield or quality at any timing. The results suggest a later application, after the flag leaf has emerged, may be needed to target the peduncle specifically. Work to pin down that timing, and to test other growth regulators, is now underway through AgriFutures-funded research at sites across Australia.

Growers should note that this was research-trial use. Check product labels and registration before considering any growth regulator on oaten hay.

The long-term fix is genetic

Ultimately, the most reliable solution will come from variety choice. Growers can select varieties less prone to the problem, and plant breeders can develop varieties that reliably elongate the peduncle and release the panicle under a wide range of conditions.

What you can do this season

While the research can't fix this year's crop, what you see in the paddock now is valuable for next year. If you notice panicles stuck in the boot, note the variety, paddock, sowing date, and how severe it was. Also record when it turned hot and dry. That record will help with variety decisions next season and is useful feedback for your agronomist and seed supplier.

Key points

- Slow panicle emergence forces a trade-off between hay quality (if cutting is delayed) and a longer, uneven cure with higher mould and heating risk (if cutting on time).
- ProGibb® SG caused no yield or quality losses in trials, but current timings lengthen the whole plant rather than just the peduncle.
- Later application (after flag leaf) shows promise and is being investigated further.
- Variety selection remains the most effective long-term solution.

As always, seasonal conditions, variety choice and paddock history should guide these decisions. Talk to your agronomist about what fits your situation.

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