

ASHEEP & BEEF

Quarterly



2024 Annual Report: Pasture Variety Trials PDS Results from six demonstration sites

Chad Hall, South Coastal Agencies

2024 marked the fifth and final year of the ASHEEP & BEEF Pasture Variety Trials, a Meat & Livestock Australia (MLA) Producer Demonstration Site (PDS) project. As part of this initiative, South Coastal Agencies (SCA) collaborated with sheep and cattle producers to assess pasture performance across diverse management systems, soil types, and rainfall zones. The primary objective was to evaluate pasture productivity, stocking rate potential, and production costs, providing an economic analysis for each scenario. Pasture selection was guided by rainfall classification, with zones categorised as high (+550mm), medium (350mm), and low (<350mm).

The 2024 season proved to be one of the most challenging years in recent history for livestock producers in the Esperance region. Producers were forced to provide supplementary feed for most of the year, while sheep prices plummeted to record lows. To further compound the issue, destocking options were limited, as processors withdrew from the market and breeders showed little appetite for investment due to severe feed and water shortages and an end date to live export was officially announced. These harsh conditions were acknowledged and reflected in the PDS trial. While such adversity makes drawing clear conclusions more difficult, it provided valuable insights into which pasture varieties can persist and perform under extreme conditions.

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Image: ASHEEP & BEEF Spring Field Day visit to Chilwell's RM4 vetch demonstration site in Condingup, 18/09/2024.

Highlights

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Method

The ASHEEP & BEEF Pasture Variety Trials began in 2020, with years one and two being plot trials to determine suitable varieties for trial in larger commercial broadacre trials conducted in years three, four, and five. These broadacre trials were to be planted by producers for the purpose of grazing under normal conditions and stocking rate and, by doing so, testing the varieties under pressure. At each location, three pasture grazing cages were constructed to facilitate livestock (sheep or cattle) grazing in the paddock while enabling continuous monitoring of pasture growth and nutritional value. Upon installing the cages, visual observations were recorded, encompassing aspects such as pasture composition, establishment, and the presence of noteworthy pests like mice, diamondback moths, and mites.

The break of the season was determined for each site by recording the date of the first opening rain, a rainfall event greater than 10mm in 24 hours. While in the 2022 demonstration sites, only ten and sixteen-week pasture cuts were taken for analysis, ASHEEP & BEEF and SCA determined that in subsequent years a third cut should be taken at twenty weeks where appropriate biomass was present to represent the entire season better and pinpoint peak biomass production throughout the year.

Pasture samples were extracted from a quadrant and sent for analysis. Each pasture sample underwent weighing to ascertain both wet weight and available biomass, allowing the determination of kilograms of dry matter per hectare (Kg/DM/Ha). The pasture cuts were uniformly trimmed from the same quadrant each time to simulate livestock grazing with subsequent regrowth closely monitored. Observations and notations were made regarding the presence of weeds, insects, diseases, and alterations in pasture composition.

Analysis

In 2024, the analysis of pasture performance placed greater emphasis on each variety's ability to overcome drought conditions, rather than solely comparing input costs or carrying capacity across rainfall zones as in previous years. With many sites experiencing severe moisture stress, the focus shifted toward evaluating which pastures could not only survive but continue to produce meaningful biomass under limited rainfall. Dry matter yields and pasture growth rates were assessed relative to the actual rainfall received, providing a clearer picture of water use efficiency and drought resilience. Nutritional quality, including crude protein and metabolizable energy, was also considered across the season to determine which pastures maintained feed value as conditions deteriorated. While the cost per DSE and nitrogen fixation were still calculated, they were used to support a broader understanding of how effectively each pasture could adapt and respond to extreme seasonal pressure, offering insight into their long-term reliability in a variable climate.

NIR Analysis

A Near-Infrared Reflectance Spectroscopy (NIR) analysis measures feed quality to ensure that the feed is adequate for the livestock grazing a pasture. Considerations that are used in this report are that a single DSE requires 8.3 megajoules (MJ) of metabolisable energy (ME) and at least 9% crude protein (CP) per kilogram of dry matter consumed to maintain condition (pregnant sheep and lambs require 15% CP). All figures used in this report are based on Dry Matter measurements. A description of all measurements has been included below.

- **Moisture and Dry Matter (DM%)** – These two figures add up to 100% and are the inverse of each other. They are the percentage of moisture removed to the percentage of DM remaining.
- **Crude Protein (CP%)** – The most used measure of proteins available from the feed source. CP% is calculated from the nitrogen content in the plant material.
- **Acid Detergent Fibre (ADF)** – ADF measures less digestible fibres, cellulose, and lignin. This can be used to measure digestibility or how much of the DM is useful. The higher the ADF content, the lower the digestibility.
- **Neutral Detergent Fibre (NDF)** – NDF is a prediction of all digestible and indigestible fibre contained by the feedstuffs. This encompasses all the ADF but includes the highly digestible fibres, hemicellulose, and pectin. Feeds with NDF levels that are too high will reduce dry matter intake, and too low will reduce roughage and digestibility.
- **Lignin** – Lignin is a component of both NDF and ADF that is entirely indigestible. It acts to bind up nutrients that would otherwise be available to the animal. Lignin aids in plant stem rigidity by binding cells to the cell wall; the plant uses this mechanism to strengthen its stem in preparation for reproduction. Abiotic stresses to the plant, such as water, heat, and nutritional stress, will cause lignin biosynthesis, which can prematurely reduce the feed quality.
- **Metabolizable Energy (ME)** – This is the measure of ME/kg of DM and is a simple calculation of gross energy minus energy losses in faeces, urine, and gases.

- **Pasture Growth Rates (PGR)** – PGR is the amount of feed grown per hectare per day, measured in kilograms of DM/ha/day over a set period.
- **Total DM/Ha** – All the dry matter measured over the period.
- **PGR AVE** – The average pasture growth rate (kgDM/ha/day) over the period of measurements.
- **Total Digestible Nutrients (TDN)** – A measure of the energy content in pasture, representing the total amount of digestible fibre, protein, carbohydrates, and fat. It's expressed as a percentage of dry matter and indicates how much usable energy livestock can obtain from the feed.
- **Growing Season Rainfall** – The rainfall collected from the 1st of January to the 1st of September; this was when the final pasture samples were taken.

2024 Project Results

Gibson

Grower: Leigh & Karina West

Variety: Diaman₂ti Bladder Clover

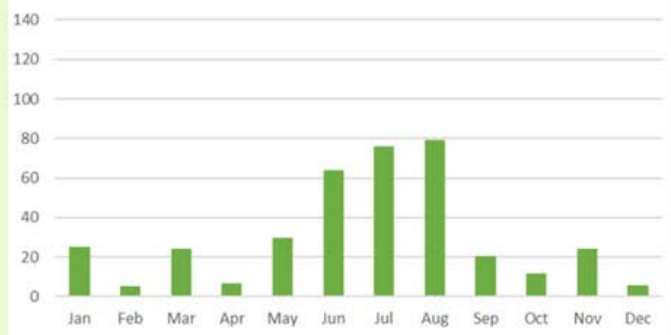
Rainfall Zone: MRZ

Annual Rainfall 2024: 370.5mm

1st Jan – 1st Sept Rainfall: 329.5mm

Soil Type: Grey Clay

Rainfall by Month (mm)



Feed Quality Metrics

Cut Timing	Moisture	DM%	CP %	ADF	NDF	Lignin	TDN	ME	DM/ha	PGR (KG DM/HA)
10 Weeks	84.3	15.7	25.7	23.5	25.6	3.99	63.8	10.01	523	12.45
16 Weeks	83.3	16.7	17.6	27.5	29.1	3.95	64.9	10.2	3117.33	74.22
Hay Sample	9.6	90.4	11.1	33.3	51	4.15	60.4	9.37	NA	NA

Leigh and Karina opted to trial Diaman₂ti Bladder Clover in 2024, selecting the variety for its hard-seeded characteristics with the aim of achieving long-term pasture persistence and resilience in the event of a false break. Diaman₂ti is well suited to low-to-medium rainfall zones and has an early to mid-maturity window, generally flowering between 90 to 100 days after germination. This early phenology was expected to improve its tolerance to dry finishes, aligning with the region's typical rainfall pattern of late winter and early spring.

Diaman₂ti had previously performed exceptionally well in the 2021 PDS plot trials, where it was recognised for both its visual appeal and strong biomass production. In comparison to older bladder clovers, which have often failed to persist beyond the first year, Diaman₂ti was seen as a promising improvement in terms of both regeneration and productivity.

However, seasonal conditions were far from ideal. A dry start to the year led to patchy and sparse germination, resulting in poor establishment by the 10-week mark. This was reflected in the first pasture cut, which recorded only 523 kg/ha of dry matter. The stand remained immature, with a DM% of 15.7 and crude protein (CP) still high at 25.7%. The metabolizable energy (ME) was measured at 10.01 MJ/kg, and total digestible nutrients (TDN) came in at 63.8%, indicating a reasonable feed quality but very limited yield.

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By the 16-week assessment, rainfall had improved, allowing the early-germinated plants to put on more growth and triggering a second wave of germination. Unfortunately, the staggered establishment led to significant weed competition, which further reduced overall pasture performance. At this stage, dry matter content increased to 16.7%, and the crude protein had dropped to 17.6% as the pasture began to mature. ADF and NDF levels rose to 27.5% and 29.1%, respectively, which is typical of plants moving beyond their most digestible growth phase. ME remained stable at 10.2 MJ/kg, and TDN lifted slightly to 64.9%. Importantly, DM yield had increased substantially to 3,117 kg/ha, with an average pasture growth rate of 44.53 kg DM/ha/day.

Despite this late-season recovery, the increasing weed burden ultimately forced a management decision to spray the pasture out to prevent further weed seed set. The remaining biomass was baled for summer feed in an effort to salvage some value from the paddock. A hay sample was collected and tested, showing a DM% of 90.4%, as expected for dry forage. Crude protein dropped further to 11.1%, while ADF and NDF increased to 33.3% and 51%, respectively, indicating reduced digestibility. ME also declined to 9.37 MJ/kg, with TDN falling to 60.4%.

While Diaman₂ti showed good potential, especially in its ability to recover and produce dry matter later in the season, the trial highlighted several key risks. The dry start significantly hindered establishment, and the delayed germination left the pasture vulnerable to weed competition. Once moisture did arrive, the pasture was able to respond well, but forage quality declined with increasing plant maturity. The recovery came too late in the season for the pasture to be carried through, and weed management ultimately became the priority.

In conclusion, Diaman₂ti Bladder Clover has potential for use in low-to-medium rainfall areas due to its hard-seeded traits and capacity to recover after dry conditions. However, its success is [...]

Cost Category	Product	\$/ha
Pature Seed	Diaman2ti	130
Fertiliser	MAP	60.5
Innoculant	Group C	0.7
Herbicides	MCPA Amine	1.1875
	Ecopar	20
	Lemate	2.4
Operational Costs	Seeding	50
	Spraying	9
	Spreading	0
Total Costs	Input Cost/ha	\$273.79
	DSE/ha	13
	Input Cost/DSE	\$21.06

Grazing Efficiency Metrics

Growth Stage	16 Weeks
DM/ha (kg)	3,117
Usable DM (kg/ha)	2,182.10
Total DSE Days/ha	1,454.80
Grazing Days	112
DSE/ha	13
DSE/ha/ 100mm Rainfall	3.95



Bladder Clover Suitability

Feature	Diaman2ti Bladder Clover	Bartolo Bladder Clover	Other Bladder Clovers
Hard Seeded %	Very high	High	Varies, typically 75-90%
Maturity	Early-mid (~90-100 days)	Mid (~105 days)	Varies (85-115 days)
Drought Tolerance	Excellent	Good	Varies
Regeneration	Strong (hard seed allows for multiple years of regeneration)	Strong	Varies
Grazing Tolerance	High (recovers well)	High	Varies
Disease Resistance	Excellent (low risk of clover scorch)	Good	Varies
Preferred Soil Types	Sandy-loams to heavier soils	Loamy soils	Varies

[...] heavily dependent on early rainfall for even establishment. Future use may benefit from tighter weed control, possible sowing adjustments, and better early-season conditions to help the pasture reach its full potential.

Producer Insight – Leigh West

"With the season we had, it was a hard year to get a gauge on the Diaman₂ti's potential. I think it will possibly have a fit replacing some of our vetch as part of the cropping rotation, in the right soil types. We haven't planted any this year, but looking at the better start to the season it might have done quite well."

"With hindsight, we should have left it in the bag last year. If I grow it in future, I'll probably set a date to pull out on. I would also wait for a proper break to get a good knock-down, or a couple of knock-downs, especially for a bulk up pasture variety when the aim is to harvest the seed. I'm thinking the 25th May or 1st June would be a good cut off point, where you might not seed it if you haven't had the opening rain. In the end, because the paddock became a bit dirty with ryegrass, vetch and serradella, we cut it for hay then sprayed. We had to control the grasses for the upcoming cropping phase."

"I see opportunities for improving pasture production by targeting the more limited areas of the farm where there is unproductive cropping land. I'm interested in permanent pastures for those areas, using bladder clovers and other long-term pastures, and trying to find out how to maximise production there. That is what we are hunting."

"We're also looking for options that will replace a bit of the vetch in our cropping rotation. The Diaman₂ti Bladder Clover may be an option there, it likes to grow in similar country. The vetch becomes problematic toward the end of the season as it has to be sprayed out quite early in spring to stop seed set for the cropping system. You can have a maximum of two vetch seeds in your wheat sample at CBH before they downgrade the load. We are forgoing about six weeks of feed. You don't have to do that with the Diaman₂ti Bladder Clover, you can get the later feed. We need to have some sort of pasture system in place for fattening lambs and grazing when the vetch needs to be sprayed out."

"Options to manage Redlegged Earthmites are also going to be important moving forward. They are becoming a bigger issue than what we think. With the later, drier starts to the season we are not getting pasture away before the redlegs jump, and they are increasingly resistant to spray control."



Image: ASHEEP & BEEF Winter Field Walk visit to the Diaman₂ti Bladder Clover at the West's, 31/07/2024. Left to Right – Hayley Hill & Tyneal Callus (South Coastal Agencies), Leigh West (Karleigh Farms), Nick Ruddenklau (Epasco – Field Day Chair).

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Cascade

Grower: Mark & Liv Walter

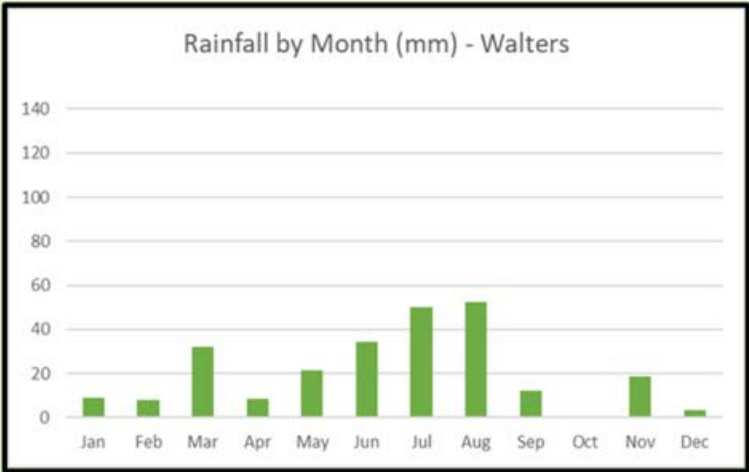
Variety: RM4 Vetch

Rainfall Zone: LZR/MZR

Annual Rainfall 2024: 249mm

1st Jan – 1st Sept Rainfall: 207mm

Soil Type: Sandy Mallee Loam



Feed Quality Metrics

Cut Timing	Moisture	DM%	CP %	ADF	NDF	Lignin	TDN	ME	DM/ha	PGR (KG DM/HA)
10 Weeks	77.9	22.1	30.6	23.8	28.9	4.51	70.3	11.22	1055	15.07
16 Weeks	84	16	29.6	23.3	25.2	4.03	72.1	11.55	1937	27.67
20 Weeks	86.1	13.9	31.8	23.3	23.9	4.46	69.3	11.03	1034	14.77

Cost Category	Product	\$/ha
Pature Seed	RM4 Vetch	55
Fertiliser	MAP	55
Inoculant	Group E	1.72
Herbicides	PSPE Reflex	14.41
	Transcend	35
	Clethodim	4.25
Operational Costs	Seeding	50
	Spraying	9
	Spreading	9
Total Costs	Input Cost/ha	\$233.38
	DSE/ha	8.07
	Input Cost/DSE	\$28.92

In the 2024 season, RM4 vetch was once again subjected to extreme early-season dryness, and it continued to demonstrate its reputation as a resilient and reliable pasture species. Known for its woody stem structure, small leaf area, and deep root system, RM4 vetch is particularly suited to challenging environments where moisture is limited. These physical characteristics support both persistence and productivity under seasonal stress, and this year’s results reaffirmed their adaptability and value to livestock systems.

Rainfall during the early part of the year was significantly below average, with only 57.5 mm recorded from January through to May. These conditions would typically limit germination and early plant development. However, rainfall improved in July (50 mm) and August (52.5 mm), providing the necessary moisture for pasture growth. By September, rainfall had dropped back to just 12 mm, effectively signalling the end of the growing season.

Grazing Efficiency Metrics (16 weeks)

DM/ha (kg)	1,937
Usable DM (kg/ha)	1,355.00
Total DSE Days/ha	903.00
Grazing Days	112 Days
DSE/ha	3.45
DSE/ha/ 100mm Rainfall	1.67

Despite the dry start and relatively short growing window, RM4 vetch still achieved a total dry matter yield of 4,026 kg DM/ha across three pasture cuts. These samples, taken at 10, 16, and 20 weeks after the break, revealed consistent and high nutritional value across the season.

At the 10-week cut, the crude protein content of the pasture peaked at 30.6%, with total digestible nutrients (TDN) at 70.3% and metabolisable energy (ME) measured at 11.22 MJ/kg. Although the dry matter percentage was [...]

[...] relatively low (22.1%)—a reflection of high moisture content at this growth stage—the feed quality was excellent.

RM4 Vetch
10-weeks post sowing



By 16 weeks, crude protein dropped slightly to 29.6%, but digestibility improved. TDN reached 72.1%, and ME climbed to its highest level at 11.55 MJ/kg. This mid-season period also marked the peak in biomass production, with 1,937 kg DM/ha recorded and a pasture growth rate of 27.67 kg DM/ha/day. These gains align closely with the more favourable rainfall received in July and August.

At 20 weeks, crude protein increased again to 31.8%, possibly due to the concentration of nutrients as the plant matured. However, TDN dropped slightly to 69.3%, and ME also declined, likely due to increasing fibre and moisture content. Dry matter accumulation fell to 1,034 kg/ha, reflecting the slowdown in growth due to declining soil moisture and reduced rainfall in September.

RM4 vetch's performance this season highlights several important traits. Its capacity to accumulate more than 4,000 kg/ha of dry matter in a dry year speaks to its drought resilience and suitability for low-rainfall zones. The variety maintained excellent feed quality throughout the trial, with consistently high crude protein and digestibility levels, attributes not often seen in pasture species as they mature. Notably, the strongest growth coincided with periods of

increased rainfall, showing that RM4 is capable of quickly taking advantage of improved conditions, even following a dry start.

Overall, RM4 vetch again proved itself as a valuable pasture species in mixed farming systems, especially in regions with variable or limited rainfall. Its structural and physiological traits support establishment under pressure, while its ability to produce and maintain high-quality feed throughout the season makes it a reliable option for producers. This year's results further reinforce its place as a dependable, high-performance legume in challenging conditions.

Producer Insight - Mark Walter

"The RM4 vetch site exceeded our expectations given the rainfall we had. We are going to keep growing vetch, but I'd like to improve it by adding something to it in a mix. Possibly one of the new clovers. I've tried mixing shorter season varieties of vetch with the RM4, but it becomes difficult to manage the seed set, which has to be stopped for the following cropping rotation. If we mix the RM4 with a clover we won't have that problem. We want to have a bit of variety in our pasture program, so that we don't have all eggs in one basket. With the pure RM4 vetch, we've been letting volunteer barley come up for early feed, but then run into issues with the need for late feed when we spray the vetch out before seed set."

"For future pasture research I'd like to see continued improvement on legume pastures that deliver high nitrogen fixation to feed the crop rotation. The more biomass we can grow, the more N is set for cropping, and the more livestock we can run."

Condingup

Grower: Simon Fowler

Variety: RM4 Vetch

Rainfall Zone: HRZ

Annual Rainfall 2024: 365mm

1st Jan – 1st Sept Rainfall: 283mm

Soil Type: Sand over gravel

Rainfall by Month - Fowlers



Feed Quality Metrics

Cut Timing	Moisture	DM%	CP %	ADF	NDF	Lignin	TDN	ME	DM/ha	PGR (KG DM/HA)
10 Weeks	64.2	35.8	26.1	26.8	30	5.52	66.3	10.47	1312	18.74
16 Weeks	86.9	13.1	35.2	20.8	21.6	3.73	73.7	1185	2561	36.59
20 Weeks	89	11	33.3	25.9	28.8	4.19	66.7	10.55	2432	34.74

Cost Category	Product	\$/ha
Pature Seed	RM4 Vetch	44
Fertiliser	SSP	63.27
Innoculant	Group E	1.38
Herbicide	Clethodim	\$3.18
	Haloxypop	2.8
Operational Costs	Seeding	50
	Spraying	9
	Spreading	9
Total Costs	Input Cost/ha	\$178.45
	DSE/ha	10.67
	Input Cost/DSE	\$16.72

Traditionally, this site has been more prone to waterlogging, with average annual rainfall typically around 550 mm. However, conditions in 2024 were significantly drier, with the site receiving only 365 mm across the entire year. From January through to September, just 283 mm of rainfall was recorded, reflecting a well-below-average season.

RM4 vetch was sown on the 19th of March, following a small break that provided just enough surface moisture for germination. From that point onward, the site experienced an extended dry spell, with limited rainfall until early June. Despite these challenging conditions, the 10-week biomass cuts, taken on the 10th of June, revealed that RM4 vetch had produced 1312 kg of dry matter per hectare, having received only 38.8 mm of rain since sowing. This result equates to a water use efficiency (WUE) of 33.8 kg DM/ha/mm of rainfall, a particularly strong outcome under low-rainfall conditions.

The ability of the crop to perform under such moisture-limited conditions can likely be attributed to a combination of contributing factors. These include some carryover of subsoil moisture from earlier in the year, the strong root establishment characteristics of the RM4 variety, and the use of a nutritional program that supported early development. In addition, moderate temperatures throughout autumn

were favourable for biomass accumulation, and above-average solar radiation, averaging 12.6 MJ/day, supported photosynthesis and sustained growth despite minimal rainfall.

It is also hypothesised that RM4 vetch exhibits lower evapotranspiration (ETo) demand than other pasture species during early establishment. This may be attributed to RM4 vetch’s higher root-to-shoot ratio and relatively small initial leaf area, which enables the plant to prioritise root development and access moisture from deeper in the soil profile during early establishment. In contrast, species such as clover typically allocate more energy toward early leaf growth while maintaining a shallow root system. This growth pattern makes them more responsive to light rainfall events but also significantly more vulnerable to false breaks and early-season dry spells. During the early stages of the RM4 trial, ETo levels averaged 3.76 mm/day. This indicates that the atmosphere was placing a high evaporative demand on the system, effectively removing up to 3.76 mm of water per day from a fully watered crop. Under these conditions, RM4’s ability to persist and grow is particularly notable.

Grazing Efficiency Metrics

Growth Stage	16 Weeks
DM/ha (kg)	2,561
Usable DM (kg/ha)	1,792.00
Total DSE Days/ha	1,195.10
Grazing Days	112
DSE/ha	10.67
DSE/ha/ 100mm Rainfall	3.77



Following rainfall in June, the pasture responded strongly. Subsequent biomass cuts at weeks 16 and 20 recorded yields of 2561 kg DM/ha and 2432 kg DM/ha, respectively. Over the measured period, RM4 vetch produced a total of 6305 kg of dry matter per hectare from 229 mm of rainfall, demonstrating a water use efficiency of 27.53 kg DM/ha/mm for the period.

The feed quality across all sampling points was high, with sufficient energy and protein levels to support all classes of livestock, including growing, finishing, and lactating animals. The combination of dry matter yield, drought resilience, and feed quality highlights RM4 vetch as a highly adaptable and productive option for mixed farming systems in low to medium rainfall environments.

Producer Insight - Simon Fowler

We were very happy with the performance of the RM4 vetch, the site gave us early grazing in a very dry start to the season. We also got good grazing through most of the winter and early spring along with good animal performance. We also achieved good weed control and harvested 140t of vetch seed the 200 ha site."

"We will continue to use vetch every year but mainly in a pasture mix with ryegrass and barley. We will only sow straight vetch as a seed paddock."



Image: Spring Field Day visit to the RM4 vetch, 18/09/2024. Left to Right - Simon Fowler (Chilwell), Tyneal Callus (South Coastal Agencies), David Vandenberghe (Vandenberghe Partners - ASHEEP & BEEF Chair - PDS Lead Producer).

Condingup

Grower: Simon Fowler

Variety: RM4 Vetch & Dargo Ryegrass

Rainfall Zone: HRZ

Annual Rainfall 2024: 365mm

1st Jan – 1st Sept Rainfall: 283mm

Soil Type: Sand over gravel

Rainfall by Month - Fowlers



Feed Quality Metrics

Cut Timing	Moisture	DM%	CP %	ADF	NDF	Lignin	TDN	ME	DM/ha	PGR (KG DM/HA)
10 Weeks	60.1	39.9	28	23	35.8	3.41	65.3	10.28	1374	19.63
16 Weeks	81.3	18.7	27.9	24.6	37.9	2.52	67.2	10.64	2202	31.46
20 Weeks	87.1	12.9	28.6	25.7	37.1	2.64	67.4	10.64	1576	22.51

This site was located in close proximity to the previously discussed Condingup trial and experienced very similar seasonal conditions. The key difference in this trial was the inclusion of Dargo ryegrass in the pasture mix, introduced to take advantage of early rainfall if it occurred.

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Cost Category	Product	\$/ha
Pature Seed	RM4 Vetch	44
	Dargo Ryegrass	90
Fertiliser	SSP	63.27
Innoculant	Group E	1.38
Herbicides	Glyphosate 450	8
Operational Costs	Seeding	50
	Spraying	18
	Spreading	9
Total Costs	Input Cost/ha	\$283.65
	DSE/ha	9.17
	Input Cost/DSE	30.93

Through earlier observations, we’ve learned that RM4 vetch performs exceptionally well in tough starts, largely due to its growth habit, which favours root development over leaf growth early on. This allows the plant to access deeper soil moisture and reduces vulnerability to evapotranspiration (ETo). However, this trait, while advantageous in dry seasons, does limit RM4’s ability to generate large volumes of early feed when the season starts softly and moisture is more abundant.

In contrast, ryegrass is well known for its ability to rapidly produce biomass under favourable early-season conditions. Although it is more susceptible to false breaks and can suffer from reduced growth during dry spells post-germination, ryegrass will thrive and bulk up quickly when supported by consistent moisture (as seen in the table below). This makes it a strategic inclusion for early feed supply.

The vetch and ryegrass combination also offers an advantage in grazing systems. As previously discussed, vetch is less palatable than many other pasture species, meaning livestock tend to preferentially graze the ryegrass early. This selective grazing gives vetch the opportunity to establish undisturbed. Once established, RM4 vetch is capable of producing substantial dry matter in a relatively short timeframe, especially in late winter or spring.

Grazing Efficiency Metrics

Growth Stage	16 Weeks
DM/ha (kg)	2,202
Usable DM (kg/ha)	1,541.40
Total DSE Days/ha	1,027.60
Grazing Days	112
DSE/ha	9.17
DSE/ha/ 100mm Rainfall	3.24

In this particular trial, however, the ryegrass component did not get the opportunity to fully express its potential due to the season. This is evident when comparing the 10-week biomass cuts between this trial and the earlier RM4-only trial, where the differences in early-season yield are minimal.

While 2024 may not have been the year for ryegrass to truly perform, the mixed pasture still demonstrates several key benefits. It provides a balanced approach to early grazing, maintains strong feed quality, and offers drought resilience by combining two species with complementary

growth patterns. Overall, this pasture system builds greater resilience through species diversity, making it a valuable strategy for variable rainfall environments.



Producer Insight - Simon Fowler

Did the site perform to your expectations? "Yes, the vetch / ryegrass mix is very productive and the two species seem to complement each other very well which results in a high level of animal performance when grazing. We have put in over 3000 ha of vetch/ryegrass/barley mix in 2025. The addition of the barley is important to give early growth and provide early feed."

"I think in the future all our pasture will be seeded every year with high performance species. This needs to be a mix of species which offer different benefits. One species needs to provide early grazing (e.g. barley), one species needs to be a legume that can handle early sowing and the competition from the other species (e.g. vetch) and one species needs to provide high quality late feed for animal finishing (e.g. ryegrass)."

Dargo Ryegrass vs RM4 Vetch

Factor	Dargo Ryegrass	RM4 Vetch
Germination speed	Fast	Moderate
Early biomass	High (if wet)	Moderate
Root depth early	Shallow	Deeper (better drought access)
Nitrogen fixing	No	Yes
False break risk	High	Low to moderate
Best fit	Early grazing, silage cut	Grazing + high-quality hay

"I think we will need to focus on more high production legumes to for the base of the pasture program. Fixing N during the pasture phase is critical but the pasture also needs to be able to sustain a high stocking rate and enable high animal performance. Vetch and serradella can meet these needs but are both vulnerable to poor performance in a late seasonal break (slow to start in the cold) and vulnerable to the impacts of water logging."

Cascade

Grower: Thomas Pengilly

Variety: Santorini Serradella, Arrow-leaf Clover, Megamax Panic Mix, Splenda Seteria Grass, Howlong Cocksfoot, Rasina Vetch, Ryecorn

Rainfall Zone: LRZ

Annual Rainfall 2024: 365mm

1st Jan – 1st Sept Rainfall: 283mm

Soil Type: Grey sand over clay

Rainfall by Month - Pengilly

Month	Rainfall (mm)
Jan	28
Feb	5
Mar	18
Apr	8
May	25
Jun	75
Jul	65
Aug	60
Sep	25
Oct	10
Nov	22
Dec	22

Feed Quality Metrics										
Cut Timing	Moisture	DM%	CP %	ADF	NDF	Lignin	TDN	ME	DM/ha	PGR (KG DM/HA)
10 Weeks	66.4	33.6	18.1	28.6	43	4.72	62.6	9.72	31.36	44.8
16 Weeks	53.3	46.7	13	40.7	70.3	5.3	58.1	8.94	1167	16.67

Cost Category	Product	\$/ha
Pature Seed	Pasture Mix	180
Fertiliser	MAP	55
Innoculant	Coated on Seed	0
Herbicides	Glyphosate 450	8
	Terrador	13.6
	Paraquat	9
Operational Costs	Seeding	50
	Spraying	18
	Spreading	0
Total Costs	Input Cost/ha	\$333.6
	DSE/ha	4.86
	Input Cost/DSE	\$68.64

Grazing Efficiency Metrics	
Growth Stage	16 Weeks
DM/ha (kg)	1,167
Usable DM (kg/ha)	816.90
Total DSE Days/ha	544.60
Grazing Days	112
DSE/ha	4.86
DSE/ha/ 100mm Rainfall	1.72

Due to dry conditions throughout April and May, the decision was made to delay seeding until June 18th. By this time, moisture levels had started to improve, but both soil and air temperatures remained well below ideal for crop establishment. These cool conditions significantly slowed germination and early root development, potentially leading to reduced plant populations and heightened vulnerability to pests, frost, and weed pressure.

This diverse pasture mix was sown as an exploratory trial to identify which varieties were best suited to the local environment, relying on natural selection to guide future pasture selection decisions. As such, it was not established with a focus on immediate return on investment, but rather to inform and improve broader program planning. Under the seasonal conditions experienced in 2024, the outcomes aligned closely with

Pasture Mix Variety Suitability

Species	Establishment (Late Sowing)	Seasonal Growth Peak	Persistence	Grazing Suitability	Role in Mix
Santorini Serradella	Slow (delayed germination, vulnerable to shading)	Spring	High (via hard seed bank)	Excellent (non-bloating, palatable)	Mid-spring nitrogen fixer, long-term regenerating legume
Arrowleaf Clover	Moderate (slow winter growth, benefits from spring)	Spring to Early Summer	High (via hard seed bank)	Excellent (late feed, low bloat risk)	Late-season feed and seed, spring N fixation
Megamax Panic Grass	Poor (cold soil delays germination, weak in Year 1)	Late Spring to Summer	Moderate (perennial, survives drought if established)	Excellent (highly palatable, needs rotational grazing)	Summer green feed if established, long-term resilience
Splenda Setaria Grass	Poor (requires warmth, limited Year 1 emergence)	Late Spring to Summer	Low to Moderate (less drought tolerant)	Good (palatable, high oxalates possible)	Supplementary summer growth, risk of thinning
Howlong Cocksfoot	Moderate (acceptable winter establishment)	Winter to Spring	Moderate to High (summer dormant perennial)	Good (fine-leaved, suits sheep)	Year-round base, winter-spring forage
Rasina Vetch	Good (vigorous early growth, reliable germination)	Winter to Mid-Spring	Low (soft seed, short-term)	Excellent (high protein, caution on mature seed)	Year 1 forage booster and N fixer
Rye-Corn	Excellent (fast to establish, tolerates late sowing)	Winter to Spring	Low (annual, self-seeds only if managed)	Very Good (early green feed, awn caution)	Nurse crop, early feed, structure for vetch

One of the key factors behind the slow start to pasture establishment was the reduced enzyme activity resulting from low soil temperatures. Enzymes play a vital role in driving the metabolic processes essential for germination, particularly the breakdown of stored starches and proteins within the seed into usable sugars and amino acids. These compounds fuel cell division, root initiation, and shoot emergence. In temperate pasture species such as clovers, ryegrasses, and cereals, optimal soil temperatures for these enzymatic reactions generally range from 10–15°C, with legumes often requiring the higher end of that range. When temperatures fall below this threshold, enzyme function slows considerably, leading to delayed energy release and sluggish radicle and shoot development. This results in staggered germination, uneven seedling emergence, and slower canopy formation, which increases the pasture’s vulnerability to weed pressure, pest damage, and moisture stress during the critical early stages of establishment.

While diverse pasture mixes offer many agronomic and ecological benefits, one of the key challenges is the limited in-crop weed control options. Management is largely restricted to strategic grazing and, in some cases, the use of a wick wiper, though this is only effective when weeds grow taller than the pasture species. This limitation became apparent at the 10-week assessment, where significant weed competition and aphid pressure were observed.

By 16 weeks, the pasture had begun to senesce, despite being sown later in the season. Stress factors, including insect pressure from budworm and aphids, were evident during biomass cuts, with visible damage to seed pods and flowering structures. Unfortunately, by the 20-week mark, there was very little pasture left to assess.

This season posed considerable challenges, particularly at this site. Despite the difficult conditions, the pasture did manage to produce some in-season biomass. However, due to insect damage, it is unlikely the pasture will persist into the following year.

Producer Insight - Thomas Pengilly

“Chad probably sums up our experiment quite well. We did get to harvest ryecorn off it for future planning. But like he suggested, re-establishment this year has been slow. We concluded that serradella was still best on sand [...]

[...] with ryecorn at a higher seeding rate an option. However there are better grass options out there for light or heavy soil types. There still isn't a legume that really competes with vetch on heavy soil."

"We simplified our seeding this year in a neighbouring paddock to just ryecorn and vetch, after our observations from this trial. Both at higher rates to see what results."

Grass Patch

Grower: Dave Vandenberghe

Variety: Pallingup Oats & Morava Vetch

Rainfall Zone: LRZ

Annual Rainfall 2024: 343mm

1st Jan – 1st Sept Rainfall: 272mm

Soil Type: Sand over clay

Rainfall by Month - Vandenberghe

Month	Rainfall (mm)
Jan	30
Feb	10
Mar	15
Apr	10
May	30
Jun	50
Jul	60
Aug	70
Sep	25
Oct	10
Nov	30
Dec	5

Feed Quality Metrics										
Cut Timing	Moisture	DM%	CP %	ADF	NDF	Lignin	TDN	ME	DM/ha	PGR (KG DM/HA)
16 Weeks	74.1	25.9	11.6	37.4	62.2	3.84	58.4	9	7597	67.83
Hay Sample	12.6	87.4	10.4	31.2	55.9	3.79	68.3	9.73	NA	NA

Cost Category	Product	\$/ha
Pature Seed	Morava Vetch	55
	Pallingup Oats	12
Fertiliser	MAP	55
Innoculant	Group E	1.72
Herbicide / Pesticide	Glyphosate 450	8
	Paraquat 360	9
	Omethoate	2.4
Operational Costs	Seeding	50
	Spraying	27
	Spreading	0
Total Costs	Input Cost/ha	\$220.12
	DSE/ha	31.66
	Input Cost/DSE	\$6.95

This pasture was sown in mid-June and remained ungrazed throughout the season. Oats were included in the vetch mix to boost early biomass and reduce the time to first grazing. Unfortunately, this site recorded the lowest rainfall of the entire trial, resulting in extremely challenging growing conditions.

At the 10-week assessment, biomass levels were too low to measure. However, by 16 weeks, the pasture had produced 7,597 kg of dry matter per hectare. Despite this yield, energy and crude protein levels were only marginally within acceptable ranges.

Given the tough season and the heavy demand on supplementary feed in 2024, the pasture was ultimately cut for hay in an effort to replenish feed reserves. This hay will prove valuable during the summer.

Grazing Efficiency Metrics	
Growth Stage	16 Weeks
DM/ha (kg)	7,597
Usable DM (kg/ha)	5,317.90
Total DSE Days/ha	3,545.30
Grazing Days	112
DSE/ha	31.66
DSE/ha/ 100mm Rainfall	9.23

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Economic Analysis & Comparisons

In a year marked by extreme price volatility across the Western Australian livestock industry, managing the cost of production has become not just prudent, but essential. With tightening margins, producers must now assess every hectare and every dollar spent to ensure maximum economic return. Although a common mistake here is to pull back on inputs altogether, this can be detrimental to profitability, rather, we must consider our return on investment for every dollar spent on inputs to ensure that we are maximising profitability and managing risk.

The ASHEEP & BEEF Pasture Trials were established to provide valuable insight into how pasture systems performed under the seasonal pressures. With a focus on grazing efficiency, cost-effectiveness, and return on investment (ROI), this report aims to assist producers in identifying strategies that offer both resilience and profitability.

While these figures provide valuable insights, it is essential to consider the context and management strategies behind each outcome. In the case of the Diaman₂ti bladder clover, the Wests established the pasture as a nursery crop and opted for a robust seeding rate of 10 kg/ha. This naturally increased the cost of production. However, under a more favourable season, this paddock had the potential to yield up to 500 kg/ha of pasture seed, with a market value of \$13/kg, equating to a potential return of \$6,500/ha, not including the early grazing opportunities that could have been realised.

Unfortunately, seasonal conditions limited the crop’s ability to meet its intended purpose. Recognising this, the Wests pivoted and made the decision to cut the pasture for hay later in the season. This move not only helped to reduce weed seed set for the following year but also allowed them to rebuild depleted hay reserves following a difficult summer.

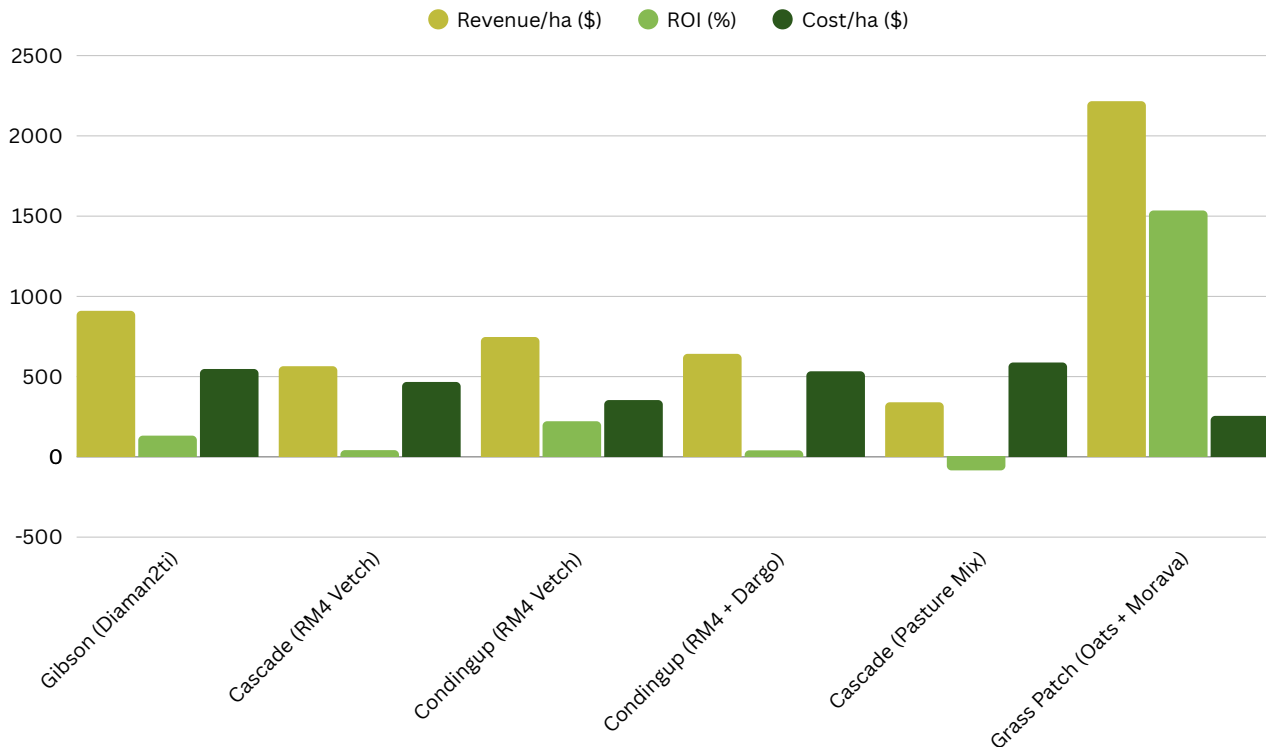
A similar strategy was employed by the Vandenberghe’s, who also chose to cut their pasture for hay. Despite producing impressive biomass, the crop matured too late in the season to be effectively utilised as a grazing resource.

While these decisions fall outside the scope of the current economic analysis, they highlight the importance of adaptive management. When seasonal conditions disrupt the original plan, being able to shift direction can reduce risk and help protect long-term profitability.

Another important consideration is that the cost of establishing a pasture could potentially be amortised over three to five years, particularly if the pasture is set up to regenerate and self-establish in subsequent seasons. However, for the purposes of this analysis, we have focused on achieving a return on investment within the first year.

Trial Performance Summary

Site	DSE/ha	Cost/ha (\$)	Cost/DSE (\$)	ROI @ \$30/DSE	ROI @ \$40/DSE
Gibson (<i>Diaman₂ti</i>)	13	273.79	21.06	42%	91%
Cascade (<i>RM4 Vetch</i>)	8.07	233.38	28.92	4%	39%
Condingup (<i>RM4 Vetch</i>)	10.67	176.99	16.58	81%	151%
Condingup (<i>RM4 + Dargo</i>)	9.17	266.65	29.08	3%	37%
Cascade (<i>Pasture Mix</i>)	4.86	294	60.49	-50%	-18%
Grass Patch (<i>Oats + Morava</i>)	31.66	127.72	4.03	643%	1063%



Pasture Performance & Persistence

Despite below-average rainfall in many trial locations, several pastures performed strongly in terms of biomass and grazing support. Notably, the Grass Patch trial (Oats + Morava) demonstrated excellent productivity and grazing efficiency, supporting over 31 DSE/ha, indicating strong persistence and effective utilisation of late-season rainfall.

The Cascade Pasture Mix site recorded lower DSE/ha outcomes and higher cost per unit of grazing. These results should not be viewed as failures, but rather as reflections of how seasonal conditions, establishment timing, and soil type can significantly influence pasture performance. One of the inherent advantages of using a diverse pasture mix is that, over time, natural selection tends to favour the species and varieties best suited to the specific environment. These better-adapted species are more likely to persist and thrive, while those less compatible gradually decline in dominance. This strategy has helped the Pengilly's have confidence in selecting varieties for their broader pasture program in the future.

Additionally, many pasture species, particularly hard-seeded legumes, have the ability to remain dormant in the soil seedbank until seasonal conditions become favourable for germination. This trait offers a form of biological insurance, allowing the pasture to express its full potential across multiple years.

It's important to acknowledge that pasture variety selection always involves a degree of uncertainty. Without knowing what the season will deliver, growers are often required to make informed decisions based on long-term goals, local experience, and a willingness to take calculated risks.

The two charts on the following page, Cost per DSE Day (\$) and DSE per 100 mm of Growing Season Rainfall (GSR), highlight key differences in how effectively each pasture system converted inputs and rainfall into usable grazing. These measures provide a more practical lens on profitability than total yield or biomass alone, focusing instead on the cost of maintaining livestock and the efficiency of rainfall use.

Cost per DSE Day

Cost per DSE day is a particularly useful metric for benchmarking pasture systems against the alternative cost of supplementary feeding. In most commercial scenarios, feeding pellets to maintain a DSE typically costs between \$0.80 and \$1.20 per day, depending on ration quality and freight.

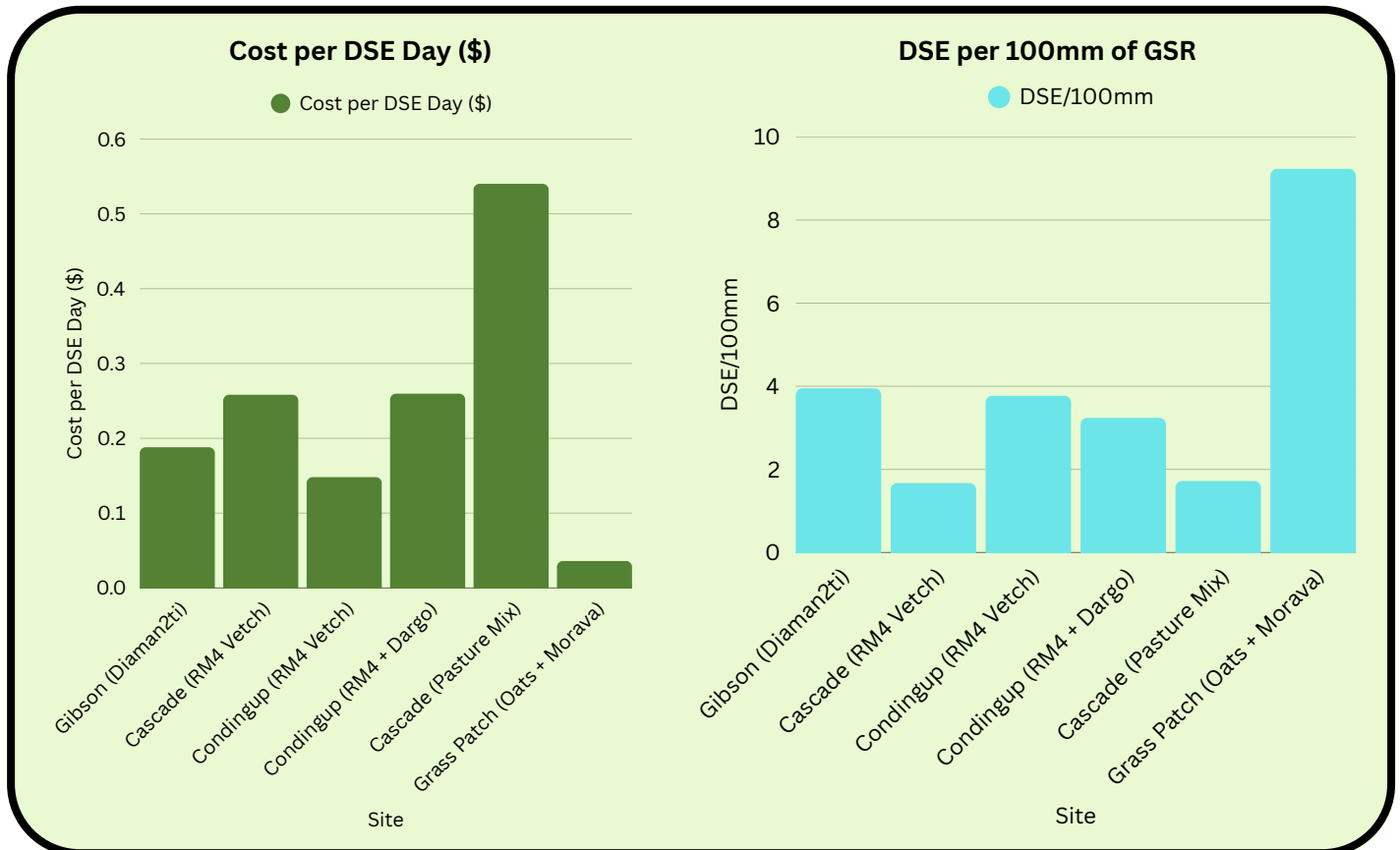
By comparison, the Grass Patch (Oats + Morava) trial delivered exceptional grazing value at just \$0.04 per DSE [...]

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[...] day, demonstrating how strategic pasture systems can deliver comparable animal maintenance at a fraction of the cost. Even allowing for variability in utilisation or grazing efficiency, this represents an extremely cost-effective system.

Other strong performers included the Gibson (Diaman₂ti) and Condingup RM4 vetch trials, which maintained DSE day costs of \$0.19 and \$0.13, respectively. These represent highly competitive alternatives to hand feeding, especially when considering reduced labour and delivery costs.

At the higher end, the Cascade Pasture Mix trial recorded a cost of \$0.54 per DSE day, bringing it closer to the range of manufactured feed. While still potentially viable in a well-integrated system, the margin for error is narrower and demands better grazing utilisation to justify the higher cost base.



DSE per 100 mm of GSR

When viewed through the lens of water use efficiency, the Grass Patch trial again stood out, producing over 9 DSE per 100 mm of growing season rainfall (GSR). This not only reflects exceptional rainfall-to-feed conversion but also highlights the value of systems that respond well to seasonal opportunities. Other trials, including Gibson, Condingup RM4, and RM4 + Dargo returned between 3 and 4 DSE/100 mm, indicating solid efficiency across more moderate rainfall conditions. By contrast, the Cascade Pasture Mix and Cascade RM4 vetch trials sat at the lower end of the spectrum, with rainfall use less effectively translated into grazing output.

These results reinforce the value of measuring both economic and resource efficiency when evaluating pasture systems. While biomass yield remains a helpful indicator, it is the cost per grazing day and grazing return per mm of rainfall that most directly influence profitability.

The standout performance of the Oats + Morava mix at Grass Patch highlights how well-matched pasture systems can deliver exceptional returns when grazing pressure, input efficiency, and pasture responsiveness align. On the other hand, higher-cost systems such as the multi-species mix may require refinement to ensure their inputs are delivering sufficient grazing return in real-world conditions.

Comparing pasture-based grazing to the cost of feeding pellets clearly demonstrates the economic leverage good pastures can provide. Even moderate-performing systems significantly undercut the cost of hand-feeding livestock, especially during tight seasons or in systems aiming to preserve capital.

Summary

Over a five-year period, the ASHEEP & BEEF Pasture Variety Trials PDS have delivered a significant study into the adaptability, productivity, and resilience of over 30 pasture varieties sown across the Esperance region. South Coastal Agencies (SCA), in collaboration with local sheep and cattle producers and supported by Meat & Livestock Australia (MLA), oversaw these trials across a variety of soil types, rainfall zones, and management systems. The trials were intentionally designed to begin with two years of plot-scale work, managed by South East Agronomy Research, to identify pasture varieties with potential for broader application. From years three to five, the focus shifted to commercial-scale broadacre paddocks, allowing for a more accurate assessment of those selected varieties under real-world grazing pressure and seasonal conditions.

The trials coincided with a period of extreme seasonal variability, from very wet years such as 2022 to one of the driest in recent memory in 2024. This unique timeframe provided the opportunity to evaluate both the risks and rewards of a wide range of pasture options in both favourable and highly adverse conditions.

Seasonal Context and Trial Methodology

Seasonal conditions varied dramatically over the course of the project. The 2022 season was marked by well-above-average rainfall, resulting in early breaks and strong biomass performance. In contrast, 2024 was one of the driest seasons recorded across much of the trial area, with delayed breaks, low rainfall totals, and limited follow-up moisture. Such variability enabled detailed evaluation of pasture establishment, persistence, and feed value under stress.

Each site was fitted with three grazing cages to simulate grazing pressure while enabling pasture cuts at 10, 16, and 20 weeks from the break of season. Samples were sent for biomass and nutritional analysis, with results used to calculate DSE (dry sheep equivalent) capacity, water use efficiency (WUE), and feed quality. Soil testing was also undertaken to assess constraints and inform nutrient programs. A strong emphasis was placed on understanding both above-ground performance and below-ground resilience, especially in relation to how pastures respond to moisture limitations and grazing intervals.

Root vs Shoot: Understanding Growth Dynamics

One of the key agronomic insights reinforced across the trial years was the contrasting growth habits between pasture species that prioritise early shoot growth versus those that favour root development. RM4 vetch consistently demonstrated a high root-to-shoot ratio, allocating early energy toward root establishment rather than canopy expansion. This trait proved particularly advantageous in seasons with limited early rainfall, as deeper root systems enabled the plant to access subsoil moisture during dry periods. In contrast, shallow-rooted species such as clovers and ryegrasses often allocated more energy to leaf development, making them more responsive to early showers but also more susceptible to false breaks and moisture stress.

This root vs shoot dynamic had clear implications for both establishment success and the timing of feed availability. RM4 vetch, though slower to produce early feed, emerged as a standout performer for total season biomass and persistence under dry conditions.

Pasture Wedge and Deferred Grazing

The trials reinforced the importance of establishing a strong pasture wedge—particularly in mixed farming systems where rotational grazing and feed budgeting are critical. Deferring grazing until a pasture has reached a minimum of 1000–1400 kg DM/ha proved essential to avoid uprooting plants and ensure rapid regrowth post-grazing. The “pluck test” was used to assess root anchorage, with stock only introduced once plants resisted pulling and leaf material broke cleanly. This simple test provided growers with an easy field-based method to ensure pastures had established well enough to withstand grazing without compromising regrowth potential.

In seasons with tight feed availability, early grazing of cereals such as Planet barley or Illabo wheat provided a valuable opportunity to defer grazing on slower-establishing pastures. Cereal crops were shown to deliver high ME and CP early in the season, allowing pasture paddocks time to build bulk and reach appropriate grazing thresholds.

Seed Set and Management in Aerial-Seeded Pastures

For pasture systems aiming to persist beyond a single season, careful management of seed set—particularly in aerial-seeded legumes such as vetch, balansa clover, and medic—was critical. In several trial paddocks, overgrazing during reproductive phases resulted in reduced seed production and diminished re-establishment [...]

[...] in the following year. To mitigate this, stocking rates needed to be reduced or adjusted during flowering and seed fill to allow for adequate set. In some cases, pasture topping with a registered herbicide was employed to prevent weed seed set while freezing feed quality in place.

Cobra balansa clover, in particular, stood out for its dense seed production, short flowering window, and high hard-seed content, making it a reliable option for areas aiming for long-term self-regeneration. However, results showed that grazing pressure during reproductive stages must be closely managed to ensure persistence.

Varietal Performance: Risk and Reward

Across the three-year review period, RM4 vetch emerged as the most reliable and resilient variety, performing well in both high- and low-rainfall seasons. Its deep-rooted, drought-tolerant architecture allowed it to produce over 6,300 kg DM/ha in the dry 2024 season, while maintaining consistently high feed quality across all sampling intervals.

Diaman₂ti bladder clover, while promising in structure and suited for regeneration in false break environments, struggled to establish under the early dry conditions of 2024. Once established, it produced good biomass; however, late-season weed competition and declining nutritional value reduced its overall impact. Its hard-seeded traits still hold potential for long-term systems, particularly when coupled with early weed control.

Ryegrasses, while beneficial for early feed under wet starts, underperformed in dry years. Tetila and Dargo ryegrass both failed to take advantage of their typical early growth advantage due to poor establishment conditions in 2024. However, their inclusion in mixes with slower-developing species like vetch proved to be a good risk management strategy in seasons with greater early rainfall.

Leafmore forage brassica demonstrated rapid early growth and good feed value when managed intensively. However, its high nutrient demand and susceptibility to insect damage late in the season limited its application as a stand-alone species in low-input systems.

Key Pastures Trialled

Variety	Optimal Sowing Time	Seeding Depth (cm)	Nitrogen Fixation (kg N/t DM)	Soil pH (CaCl ₂) Range	Nutrition Requirement	Warnings / Notes
RM4 Vetch	Late March - Early May	2 to 4	20	5.5-8.5	Moderate P & K	Photosensitisation risk at flowering/seed set; excellent drought tolerance and root-to-shoot ratio benefits establishment.
Diaman ₂ ti Bladder Clover	Early May - Mid May	1 to 2	20	5-7.5	Low - Moderate	Sensitive to early weed pressure; ensure good ground cover to avoid bare patches and erosion.
Leafmore Brassica	Late March - April	0.5 to 1.5	0	5.5-8	High N & S	Highly responsive to nutrition but insect-prone; short-lived unless managed well.
Tetila Ryegrass	April - May	1 to 2	0	5.5-7.5	Moderate	Poor persistence in hot/dry climates; sensitive to waterlogging.
SARDI Lucerne	Autumn - Spring	0.5 to 1	20	6-8.0	High P & K	Requires inoculation if not previously grown; avoid acidic soils (<6.0).
Casbah Biserrulla	April - May	0.5 to 1.5	20	5-7.5	Moderate P	Hard-seeded; ensure correct inoculant. Susceptible to false breaks and establishment setbacks.
Snail Medic	April - May	1 to 2	20	5.5-7.5	Low - Moderate	Low ME if mature; prone to overgrazing; rotate or defer grazing to ensure seed set.
Cobra Balansa Clover	April - May	1 to 2	20	5.5-7.5	Moderate P & K	High seed count aids persistence; ensure seed set by avoiding overgrazing late season.

Continued over page.

The ASHEEP & BEEF Pasture Variety Trials commercial-scale demonstration sites, conducted from 2022 to 2024, have demonstrated the critical role of species selection, grazing management, and timing in determining pasture system performance. Resilient varieties like RM4 vetch have proven their worth in tough seasons, providing a combination of high feed value, nitrogen fixation, and biomass yield under limited moisture. At the same time, other species, such as Diaman2ti bladder clover and Balansa clover, have shown potential for regeneration and long-term persistence when properly managed.

The results underline the importance of matching pasture systems to rainfall zones, grazing expectations, and operational flexibility. Diverse pastures, carefully managed for seed set and grazing timing, provide a more robust feed base and can contribute significantly to whole-farm resilience. Future work should continue to refine these systems, particularly in light of increasing climate variability.

Final survey – please complete!

We are now completing our final report for the PDS, which includes one last survey of producers. We'd greatly appreciated it if you could please complete the survey via the QR code or visit <https://nam.dcv.ms/LlubPfVvYn>. We will circulate a copy of the final report in coming months, which includes all the results across the 5 years of the project. You can access the annual reports at www.asheepbeef.org.au/pasture-variety-trials.



Many thanks to the demonstration site hosts and South Coastal Agencies for their work collecting and assessing results for 2024.



Executive Officer's Update

Sarah Brown, ASHEEP & BEEF

Committee changes

ASHEEP & BEEF's annual conference and AGM was held in June, with over 100 people in the room and good discussion. The AGM saw half of the twelve ASHEEP & BEEF Committee positions declared vacant, as per the constitution. Josh Sullivan stepped off the Committee, with many thanks for his past contribution. Neville McDonald joined the Committee and others were returned to their positions.

Following the AGM, the ASHEEP & BEEF Committee met on 2nd July and elected the office bearers for the coming year. David Vandenberghe had reached the maximum of three consecutive years as Chair, and was recognised at the AGM and the Committee meeting for the value of his contribution during that time. Nick Ruddenklau was elected as the new Chair, Ryan Willing as Vice Chair, and Alan Hoggart continues in the combined position of Treasurer / Secretary.

Project applications

ASHEEP & BEEF submitted three Producer Demonstration Site project applications in the latest Meat & Livestock Australia funding round. All three have progressed to the second stage of the application process which was great news. We're now working on refining the applications – producers keep an eye on your email as we'll be touching base with details.

On the home front

I am pleased to announce that my journey with 'cattle farming' has recently begun, with the addition of two poddy calves. Google AI advises that you only need two to claim you have a herd! Things got off to a solid start, with a black Angus calf named "John Dutton" and a very handsome red calf "Gary". I was on the verge of boasting to the Cattle Sub-Committee that I had the hang of it and was ready to give them some pointers, when Gary went downhill and made a sudden departure. A third calf arrived soon-after, a female black Angus. I am in the awkward position of realising that I've no idea who is who without lifting a tail, and as such now have "John Dutton" and "John Dutton?" living alongside a collection of far more easily identifiable but nameless lambs. My appreciation of the skill involved in a professionally farmed steak is on the rise, if I produce one it will be a miracle.

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Vet Spot: Kikuyu toxicity

Dr Scott Jackson & David Swan, Swans Veterinary Services



Celebrations following the seasons break were interrupted for 4 beef producers in the Esperance coastal district by a rare outbreak of Kikuyu toxicity. The last recorded outbreak in WA was in 2007 and saw around 20 farms in the Albany/Denmark area affected. The 2025 Esperance outbreak has been localised to three properties east of Esperance, with a fourth occurring 100km west of town. One property saw 40 fatalities. Outbreaks of this disease have not been seen in Esperance previously.

Kikuyu toxicity is a rare phenomenon, probably caused by a toxin produced by *Fusarium* fungus, which normally resides in the stems of multiple pasture species. Outbreaks tend to occur following a dry season, when young, rapidly growing kikuyu dominant pastures have been grazed for the first time after high autumn rainfall.

Deaths and illness were mostly seen within 1-8 days after cattle were introduced to these pastures. In one instance, it took 3 weeks for deaths to occur, however this pasture was very immature when cattle were first introduced and cases seemed to coincide with cessation of heavy supplementary hay feeding. In some outbreaks, multiple deaths preceded any visible sickness in the herd. Symptoms in sick animals included extreme depression, salivation, dehydration (sunken eyes), sham drinking, staggering, severe aggression and abdominal discomfort. Sham drinking is a syndrome whereby animals stand over troughs or dams playing with the water but not drinking. Kikuyu toxicity causes damage to the forestomachs and fluid accumulation in the rumen. The animals are dehydrated and thirsty, but are too full & painful to drink. There may also be a portion of neuro toxicity as well.

In both the 2007 and 2025 outbreaks, toxic paddocks that were spelled and then re-grazed later in the season were safe in all but one instance: On the Munglinup property, more deaths were reported after a new mob were moved onto a paddock that was spelled for two weeks following initial fatalities.

We believe there is a correlation between toxicity and pasture emergence following rainfall after a hot dry summer which stresses the plants. Also, kikuyu seems to have been the more dominant pasture to emerge following this dry spell, implicating lack of toxin dilution by other pasture species as another possible cause. This year's warm/wet break has been the best year for autumn Kike in decades!

Pasture maturity seems to decrease risk as we have not seen any further outbreaks since late May. Risk is difficult to predict, as evidently not every good break following a dry summer has resulted in this disease. Similarly, individual farms that saw deaths in one paddock, experienced no cases in other paddocks which appeared identical in both prevalence and maturity of kikuyu. Moving sick/dying stock from toxic paddocks on to zero kike (i.e. crop regrowth) paddocks resulted in cessation of cases. In one case where kike free paddocks were not an option, a mildly affected animal continued to deteriorate and died after being moved on to another kike paddock assumed to be non-toxic. Heavily pregnant cattle appear to be at greater risk, however animals of multiple age groups and parity status have been affected. Any treatment we have attempted in sick animals has not been effective.



Ultimately, the risk factors and toxic mechanism still remain poorly understood. Kikuyu toxicity is such a rare phenomenon that producers should not be discouraged from grazing young kike pastures (sometimes is all we have!). These are our **current prevention recommendations**: **1.** Ensure cattle are not introduced on to young/rapidly growing kikuyu dominant pastures with empty stomachs (avoids gorging), **2.** Supplement with hay during the high-risk period (when pasture is immature) to increase rumen fill and therefore dilute the amount of toxin ingested. **3.** Spell toxic pastures for four weeks before cautiously re-introducing lower risk stock such as dry cattle or sheep.

Kikuyu toxicity has been reported in **horses**, but we have seen no clinical cases. We have seen it cause swelled head & pathologic fractures due to interference with Calcium metabolism. We have not seen acute toxicity in **sheep**, however we have seen hypocalcaemia in pregnant ewes induced by movement onto rapidly growing kikuyu pastures.

Image: Down cow demonstrating extreme dehydration (sunken eyes) on young kikuyu pasture.

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Kikuyu Toxicity & Pasture Improvement Workshop

Sarah Brown, ASHEEP & BEEF

This summer saw a rare outbreak of kikuyu toxicity in cattle on a number of farms in the Esperance region. Following that, DPIRD reached out to ASHEEP & BEEF and has teamed up with our Cattle Sub-Committee to put together a half-day workshop in Esperance covering kikuyu toxicity, as well as kikuyu pasture management and improvement.

The agenda will be out shortly, it's looking good with vets, pasture researchers, and producers all involved as speakers, and some good group discussion.

Keep an eye on the e-news for registrations to be released and in the meantime, save the date for the morning of Tuesday 29th July 2025.

TUESDAY
29TH JULY
2025

Pain management for lambs and calves at marking

Nutrien Ag Solutions Animal Production Advisors

There are several different pain management options to administer to calves and lambs at marking time. It is important to use best practice marking techniques to ensure the greatest outcome for your livestock.

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Lambs should be marked from 2-12 weeks of age with the youngest animal in the mob being at least 24 hours old.[1] A smaller wound allows for faster recovery time. Beef calves should be marked as young as possible and before six months of age.[2] After six months of age, you should consult your private veterinarian for advice.

Types of pain

Pain can be classified into immediate (fast pain) and chronic (slow pain). Marking procedures result in immediate pain associated with the procedure and chronic pain associated with inflammation and healing.[2]

Types of pain management

Local anaesthetics act by blocking pain and sensory function in a small, localised area. They are fast to take effect (usually 1-5 minutes), but they do not last for a long time. They are good at controlling the immediate pain associated with marking procedures.

Anti-inflammatories take longer to have an effect as they act by managing pain but not sensory function. They last for longer and are better at controlling the chronic inflammatory pain that occurs later after the marking procedures.

Multimodal pain relief is controlling both the immediate pain and the chronic pain by using a combination of pain relief products. This is considered best practice and will result in the best outcome for livestock.

Pain management options

Numnuts® is a ringing device that injects local anaesthetic (NumOcaine®) into the site directly at the time the ring is applied; therefore blocking pain at the site. It acts quickly taking only 1-2 minutes to take effect.[3] It is short acting, lasting 15-45 minutes[4], however it will remain effective for the most intense pain associated with ring marking. It is indicated for castration and tail docking of lambs aged 2-12 weeks of age, by application of rubber rings only.[3] It is not registered for use in calves.

Tri-Solfen® is a gel spray that is applied topically to open wounds. The active ingredients are included for pain relief, reduced bleeding, infection control and wound care[5]. Tri-Solfen contains two types of local anaesthetic agents, one of which has a longer duration of action. It is formulated as a gel to coat the wound and contains antiseptic to reduce infection and adrenaline to control bleeding. It is applied directly to the wound by spraying it onto the exposed tissue. It can be used for procedures such as mulesing, surgical castration and surgical tail docking in lambs. It can also be used for surgical marking procedures and disbudding/dehorning in calves.

Bute® (meloxicam) is a non-steroidal anti-inflammatory (NSAID). This product is an oral gel which is applied to the inside of the cheek and absorbed through the gums. It takes about 15 minutes to take effect and has a duration of action of approximately 3 days.[6] Bute is registered for both sheep and cattle for marking procedures.

There are also injectable anti-inflammatory options available via veterinary prescription only. Please contact your local veterinarian to discuss.

[Cont. over page.]

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Best practice multimodal pain relief for different marking procedures

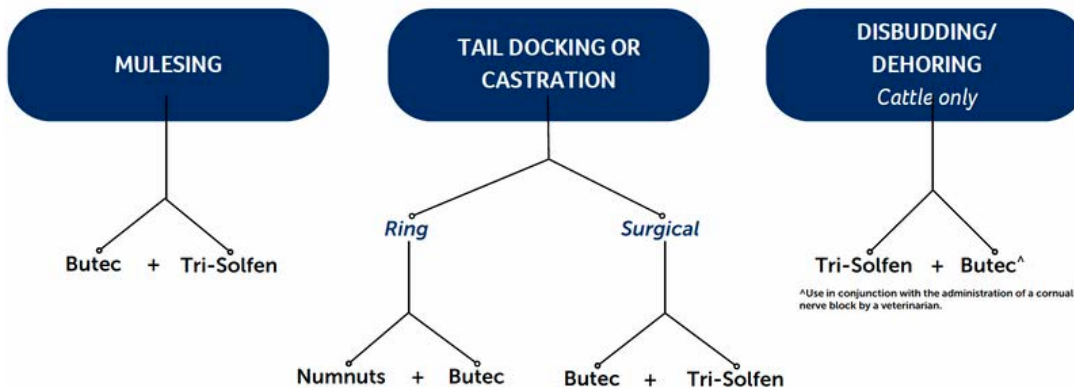
Product/ active	Application	Mode of action	Mulesing	Tail docking & castration (surgical)	Tail docking & castration (rubber ring)	Disbudding/ dehorning
Numnuts® (NumOcaine®) Lignocaine <i>Note Numnuts is only registered for use in lambs</i> 	Injection	Local anaesthetic				
Tri-Solfen® Lignocaine, Bupivacaine, Adrenaline, Cetrimide  	Topical spray/gel	Local anaesthetic Vaso-constrictor Antiseptic				Cattle only. 
Butec® Meloxicam  	Apply between the molar teeth and inside of the cheek. Not intended to be swallowed.*	Anti-inflammatory pain relief		 <i>Label recommendation is to use with local anesthetic at the surgical site.*</i>		Cattle only.  <i>Use in conjunction with the administration of a corneal nerve block by a veterinarian.</i>

*Will not cause harm if swallowed but efficacy is likely to be affected.

**Recommendation is from the product label "to enhance pain relief and minimise tissue damage and distress."
[Accessed <https://portal.apvma.gov.au/pubcris> April 15 2025]

Source:
<https://www.lls.nsw.gov.au/regions/murray/articles,-plans-and-publications/production-advice-august-2020/pain-relief-options-for-lamb-marking>
[Accessed 11 August 2023]; Numocaine and Tri-Solfen product labels
[Accessed at <https://portal.apvma.gov.au/pubcris> 15 April 2025].

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WA Sheep NLIS & eID helpdesk open

Monday –Thursday

8–10am; 1–2pm; 4–6pm WA time

Phone: 0438 129 354

Email: shiftingsheep.help@gmail.com

A WA Sheep NLIS and eID helpdesk has recently opened, it's a free service for WA sheep and goat producers to assist with understanding and meeting their NLIS and traceability requirements.

The service is a collaboration between WAFarmers, Curtin University, and Magnify Agriculture Global.

Help with

- When and how to tag with eID
- Which tags to use
- How to scan and transfer eIDs
- When to transfer stock to or between PICs
- How to set up / use an NLIS account
- Running a report of stock movement in your PIC
- Fixing things
- LPA, accreditation, eNVDs, myMLA

Phone, text, email and online meeting options are available to answer your questions.

With an online meeting via Teams, the service can step you through using the NLIS database on your computer to move sheep onto or between your PICs and run reports.

Call during operating hours to speak to someone or text name and question to request a call back or set up in-home computer help session.

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Reference: 1. Inglis, L. et al. (2019). Behavioural measures reflect pain-mitigating effects of meloxicam in combination with Tri-Solfen in mulesed Merino lambs. *Animal* 13(1): 2586-2593. *Tri-Solfen is a registered trademark of Animal Ethics Pty Ltd. ©Dechra Veterinary Products (Australia) Pty Ltd, 2024. DEC24402.



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Safety Spot: Creating a good workplace safety culture

Jan Clawson, ASHEEP & BEEF

While we can buy a file full of policies and procedures and we can talk about safety until we are blue in the face, creating or building a safety culture is how we get our staff to work safely, even when no one's watching. So, what is a safety culture?



Workplace Health and Safety Queensland defines safety culture as “an organisational culture that places a high level of importance on safety beliefs, values and attitudes – and these are shared by the majority of people within the company or workplace”.

All workplaces have a safety culture, but not all are good or safe. A positive safety culture exists when everyone understands that safety comes before speed, convenience, or the mindset of 'how it's always been done.' It's about making the right choice, even when it's not the easiest one. So how do you build a good safety culture in your workplace? There are **five key steps**.

It all starts with good leadership

Remember, if it's okay for the boss to do it, then staff will do it too! Good role models set the examples of acceptable behaviour. Consider the impact you can have on those you work with by promoting a culture of open communication, respect, and genuine concern for others well-being. Sharing stories that acknowledge past mistakes, and the lessons learned over time helps promote open communication and mutual respect.

Putting your people first

Creating a team environment where everyone feels comfortable making suggestions, asking questions, airing concerns, and even making mistakes without being judged or shamed. This can be achieved by building genuine connections with everyone in your team, encouraging good communication and trust. Good relationships increase the likelihood people will behave in a way that will achieve good safety outcomes as well as improving team performance, creativity, and problem-solving.

Encourage and reward reporting

Staff need to feel safe when reporting hazards, near misses and unsafe practises. There should be no shame, blame or negative response. Sometimes, simply thanking them for bringing the issue to your attention is enough to encourage this behaviour. What matters most is taking timely and visible action to address the concern. Inviting the team to contribute ideas for solutions can also help everyone feel part of the process. This approach builds trust by showing that staff have been heard and their actions are valued in a positive way.

Continual training and improvement

This could include leadership training to ensuring your leaders are competent in people management skills like communication, empathy, and teamwork. Other staff will benefit from being given the opportunity to learn new skills and progress in their roles or careers. And whether it's new staff or current staff we all need a safety refresher from time to time so those old bad habits don't sneak back in. Training should provide real value for your staff, not be a box ticking exercise.

Safety ownership

Safety should be owned by everyone in the team; it's not one person's responsibility, it is the whole team's. When someone spots a hazard, they feel empowered to take action to prevent it from becoming an incident. They feel comfortable asking questions if they're unsure and be encouraged to report a near miss, so others don't get hurt. Building this kind of culture takes time and effort, but it's worth it. You're not just creating a safer workplace; you're improving the entire work environment.

When people feel like they're a valued part of the team, they show up, they speak up, and they look out for one another. That's what keeps everyone safe.

References:

<https://www.workhealthyaustralia.com.au/5-ways-leaders-can-create-safety-culture/>
<https://www.youtube.com/watch?v=BdTbI5eLm0E>

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Case Study: Backgrounding & finishing lambs

By Brooke Littlewood. (The following article is supplied by V&V Walsh, reproduced from a story authored by Brooke Littlewood, Farm Weekly, 12 June 2025. It has been edited for length).

Esperance farmer Neville McDonald has found a quiet satisfaction in running lambs on stubble paddocks, before they are finished in a feedlot and sent directly for processing.

"Lambs come on farm at about 28 kilograms liveweight – you can just about carry them off the truck," Mr McDonald said. "To see them then leave at about 50-odd kilograms, jumping out of their skin, that's pretty rewarding."

The McDonalds run a 80:20 cropping and sheep enterprise, known as Macsfield, on properties at Condingup and Beaumont, both east of Esperance. Farming alongside his parents and two brothers, second-generation Mr McDonald oversees 11,000 hectares of wheat, barley, canola, peas and faba beans, 700 Merino ewes and a White Suffolk stud. He also backgrounds and feedlots anywhere up to 15,000 lambs each year, for processing at Bunbury-based abattoir V&V Walsh.

"We buy about 8,000-10,000 lambs in September and October – and don't chase any particular weight," Mr McDonald said. "We aren't afraid of going for those 27-28kg liveweight animals, knowing full well they will be backgrounded in stubble paddocks for a couple of months. You get a few free kilograms of feed by doing that... well I'm not sure it's free, but they do clean up any excess grain from the paddock."

While crossbred lambs are the preference, the McDonalds also run a large percentage of Merinos. All lambs are sourced by local Esperance Nutrien livestock agents from farms in the Great Southern region. After arriving at Macsfield, lambs are inducted, shorn, drenched and vaccinated, before being run on stubbles across the entire cropping program. This is done in mobs anywhere from 400-head right through to 1500-head. A small amount of trail feeding is done, as part of the backgrounding program.

As well as buying in lambs, the McDonalds also breed their own from a 700-head Merino ewe flock on the property's most southern block. The Merino ewes are mated to White Suffolk rams in October-November and lamb in March onto stubbles. Once January hits, about 4000-5000 lambs are moved into a paddock feedlot system, and are sent into V&V Walsh from Australia Day. The feedlot has a 11,000-head capacity, and is spread across four hectares at Beaumont. It features 28 pens, each about 80m by 50m, with a holding capacity of up to 500-head per pen, although the McDonalds keep it under this. "We make our own grain ration – which consists of hay, straw, grain and TMV – and run a couple of Keenan mixers," Mr McDonald said.



How much weight the lambs gain in the feedlot per day depends on their condition when entering. For some it's 200 grams, and others 400g. Mr McDonald aims for a ratio of five to one – for every five kilograms fed. "They range from eating anywhere between 1kg per head, per day to about three-and-a-half kilograms per head, per day – that is what determines the growth rate," he said. "All of the animals are fed from double-side troughs, which helps to limit the number of shy feeders. There are feed troughs in all of the pens, which are about 50 metres in length, and can hold up to 1200kgs."

Continued over page.



Lambs are usually kept in the feedlot anywhere between three weeks to three months, again it depends on their weight when entering. They are assessed six weeks after entry, and then weighed fortnightly.

The McDonalds try to send about 800-head per week to V&V Walsh, tipping the scales at about 23-24 kilograms dressed weight. To replace numbers that have left the farm for processing, the McDonalds buy up big again in March.

"We try to have our program finished by the time the suckers and hoggets turn up."
 "For us the biggest benefit of lotfeeding is that you get to use your off-type grain. Nothing leaves the farm except meat – that's the finished product. There's your hay, straw and all those things that are done in house, so there are benefits from behind the line stuff here because you don't have to buy it in."

Mr McDonald has been supplying V&V Walsh for the past 15 years.



AWI Extension Webinars: Upcoming & past recordings



WEBINAR: Water-smart management strategies

Tuesday 29th July, 1pm

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Guest speakers: Nik Callow (UWA), Michael Wright (Rhodes Pastoral) & Wayde Robertson (Yalup Farm), plus Q&A

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AWI Extension WA has been running a series of webinars for sheep and wool producers. The next one is advertised to the left. Recordings are made available after they run.

Past webinars include:

- **Making Cent\$ of Carbon and Emissions on Farm** – Guest speakers are Esperance producer Bruce Pengilly, Penrose Pastoral, and Richard Brake Consulting.
- **Making Money from Wool Sheep** – Learn the latest strategies, tactics and economic analysis to help WA woolgrowers overcome market challenges and make more money from wool sheep
- **Using EID for profit and productivity** – Learn how EID can improve your productivity and profitability and how to get started at our free online event.

Recordings



Winter... heading to spring

John Mitchell, Esperance Livestock Transport

G'day Folks,

Thanks again for your support over the journey so far – we are looking forward to the new upcoming sheep and cattle selling season. We are very proud we are only transporting livestock, it is our entire focus.



Transporting cattle and sheep in and out of the Esperance region is a privilege and our aim is to continue our endeavour to provide significant value to the livestock community.

Our journey.... 'We are keen and committed'

Over the last few years we have been working internally on the business with a mind to being set up to continue our development over the next 5 years or so.

- Investment in people – getting good people and developing them into livestock transport operators.
- Improved training and development of drivers.
- Improved IT and planning systems and processes.
- Enhancing maintenance and workshop capacity and functionality.



Beef Central – Top 30 livestock Transport businesses – survey (by uplift capacity)

Mitchell's (Including Esperance Livestock Transport) have been ranked **#6th Largest in Australia – up from #13** in 2013. Our localised entry into the Esperance area started with Steve Crawford in 2016 and continued with the acquisition of TRAC in 2019. The Myrup depot was purchased the same year.



Our sheep business

The Federal Government changes to the sheep supply chain (by the Live Export Ban) have been very emotive and incredibly difficult for many of us to come to grips with. We supplied twelve of our trucks to the 'keep the sheep' convoy on the 28th March.

We have rationalized our capacity and are focused on keeping our two Seven Deck units that we believe have been very successful in terms of efficiency and safety. We will take a breath and continue to develop our live sheep journey – by focusing on our existing relationships and being open to new opportunities that are future minded, highly principled in terms of animal welfare with shared and aligned values. *Again, we are keen and committed...*

The Kimberley (for those who don't know)

Our Kimberley business has been steadily growing since 2013 also – In 2023 we purchased a block of land in Broome (Roebuck) which is now provides a base for our equipment and staff which will further strengthen our bond with the Kimberley Region. We have customers in all regions of WA.

The final word.....

Our business has terrific people, a strong work ethic and equipment that is second to none. We have many strong relationships with long-standing customers who we will 'run through a brick wall for'. We look forward to continuing to work alongside like-minded folks who value who we are and appreciate what value we offer those businesses.

*Note: We are holding our **Low Stress Stock Handling School in Waroona 11th & 12 September. Our aim is to hold one in the Autumn of 2026 in Esperance.***

All the very best to you all – John, Lisa, Steve Crawford and the crew.

Above: 12 trucks and trailers in the Keep The Sheep rally.

Below: Latest K220 and C train.





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Rising prices and trade disruption create "uncertainty and unpredictability" in global beef markets

Rabobank

Global cattle markets have all been trending higher in the first half of 2025. However, since President Trump took office in January 2025, uncertainty and unpredictability have reverberated through the global beef market, according to a recent Rabobank report.



With beef one of the largest agricultural commodities traded by the United States, any change to US trading arrangements has the potential to affect the beef market at a global level, the bank's RaboResearch division says in its **Q2 2025 Global Beef Quarterly**.

With the global supply and demand situation and the trading arrangements as of the beginning of June, RaboResearch expects trade flows to be maintained. However, the report says, this is likely to change if major trading blocs, such as Europe and China, become involved in a trade war with the United States.

Contracting supplies

Global cattle markets have been trending higher in the first six months of the year, with European prices experiencing an especially strong rise in Q1, as domestic supplies contracted while demand remained strong.



"The rise in European prices now puts them in line with the strong North American cattle prices, which continue to rise slowly," report lead author, RaboResearch senior animal proteins analyst Angus Gidley-Baird said. "In both Europe and the US, disease and pests are affecting cattle supplies," he said. "In Europe, and now in the UK, Bluetongue virus continues to affect the herd. Meanwhile, New World screwworm in Mexico has caused US authorities to close the border to Mexican cattle imports, and the risk of potential infestation in the US is increasing." Mr Gidley-Baird said these health threats are challenging production in markets where beef supplies are already projected to be lower, likely further supporting already elevated cattle prices.

Production declines

"Global beef production is expected to contract through the remainder of the year, with an overall contraction of two per cent projected for the year," Mr Gidley-Baird said. "The largest contractions are expected to happen in Brazil (down five per cent) and New Zealand (down four per cent), with contractions also expected in Europe, the US, and China. Australia is one of the few regions expected to see a production increase."

Global trade

On April 5, tariffs were introduced for many countries exporting beef into the US. "Additional, so-called reciprocal tariffs for identified countries are on hold until early July, and the US-China tariff escalation has also been put on hold until early August," Mr Gidley-Baird said. "While negotiations are ongoing, we are starting to see some redistribution of beef trade volumes around the world. Reports are emerging that Chinese buyers are looking more toward Australian, New Zealand and South American suppliers as US beef becomes unavailable or more expensive."

Although the full extent of the trade war remains uncertain, RaboResearch remains cautiously optimistic about beef demand and trade flows. "Beef hasn't been singled out as a targeted commodity, and most major exporters are only facing baseline tariffs," Mr Gidley-Baird said. "So early indications suggest that competitive positions will be maintained, albeit with added costs to the system. The global supply and demand situation should maintain current trade flows. But if the US-China tariff war escalates and Europe becomes more involved, this is likely to change." "Much of the media attention has been on the imposition of tariffs, but this may only be the opener to the main event," Mr Gidley-Baird warned. "In just a few months, countries have entered trade talks with 30-day time frames. The result has been more trade agreements than we've seen in decades," he said. "While tariffs may have grabbed headlines and caused headaches, the real story will be the implications of shifting global trade dynamics."

Australian outlook

Mr Gidley-Baird said Australian seasonal conditions will have a varying impact in different regions, but the bank expects overall beef production to remain high and cattle prices steady.

Continued over page.

Saleyard cattle prices have been relatively steady since the start of the year, with most trading within five per cent of the average for the year to date, the quarterly report said. The National Young Cattle Indicator has been range bound between AUD 3.41c/kg and AUD 3.78c/kg for the first four months of the year, continuing one of the most stable periods in the past 10 years.

"Widespread rain through Queensland, the largest cattle-producing state, in late March and early April provided some respite for producers that were facing drier conditions," Mr Gidley-Baird said. "This rain has allowed most to now hold cattle and possibly increase numbers slightly, providing support for cattle prices in April and into May. At the same time, areas of southern Australia have been selling increasing numbers given ongoing dry conditions." He said conditions in southern Australia are poor, with many producers hand feeding or sending stock away on agistment.

"As we move into winter, there has been an increase in cattle sale numbers in southern areas, as producers sell off stock before the cold weather sets in," Mr Gidley-Baird said.

RaboResearch Disclaimer: Refer to Australian RaboResearch disclaimer at www.rabobank.com.au/knowledge/disclaimer/

Keeping up to scratch with vaccinations

Australian Wool Innovation



The AWI | TLC Partner Program recently held a webinar with veterinarian **Dr Michylla Seal of Genstock** who provided a summary of what to consider about vaccinating sheep. That webinar recording is now available online, and AWI has released a written article covering the key points and recommendations.

"There's much about our animals' health that we can't control, but preventing disease through vaccination is something that we can control. So be proactive. The benefits of using preventative medicine can far outweigh the costs of being reactive and having to deal with disease in your sheep when it strikes," Dr Seal said. "However, there is no one vaccination program that suits all sheep and wool producers. Whether and when to vaccinate depends on your sheep enterprise's circumstances."

Dr Seal says the decision as to whether to vaccinate is based on factors including:

- **Prevalence of the disease in your area** – what is the likelihood of the disease occurring?
- **Cost and impact of the disease** – will an outbreak of disease have a large or minor cost and impact on your business?
- **Class of animal** – does disease pose a risk to a particular class of sheep? Is that class going to be retained on your farm, traded, or sent to slaughter?
- **Cost and efficacy of the vaccine** – do the benefits of a particular vaccination outweigh the costs in terms of money, time, and welfare?
- **Your attitude to risk** – how much of a risk do you want to take?

"The other thing to be aware of with vaccination is that achieving success is not just due to the vaccine, it's also about whether the sheep is in a good enough condition and health at vaccination time to have the ability to get the most out of the vaccine and form a good immune response," Dr Seal said. "Vaccination gives the majority of the animals good, adequate protection, but there will be a small proportion of animals that have a poor response. Although it might be due to a human misapplication of the vaccine, most of the time will be because those animals are nutritionally challenged and in poor condition. So if you get an incidence of disease after vaccination, it's not because the vaccine is no good, it could well be because a proportion of the animals were doing it tough, such as during a poor season. Don't stop vaccinating because of that; you should be making sure that you are giving them as much protection as you can. Never hesitate to reach out to a veterinarian to ask for help if you've got any concerns."

Read the [full article](#) with Dr Seal's recommendations on the following vaccines at www.wool.com/news-events/beyond-the-bale/issue-103-winter-2025/vaccination-103/ or view the [webinar recording](#).



- **Clostridial vaccine**
- **Ovine Johne's Disease (OJD) vaccine**
- **Campylobacter vaccine**
- **Erysipelas vaccine**
- **Scabby mouth vaccine**





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Ram buying and the new indexes

Jan Clawson, ASHEEP & BEEF

With ram buying season just around the corner it's probably a good time to start thinking about your next ram purchases. This might start by thinking about your flock and if it's going in your desired direction given the changing markets.

We know from the MerinoLink project and the Mastering Merino Genetics project that if you focus on a genetic trait, you will see a change. We also know that there is a bit to consider when making a change. While there may be some traits, you'd like to improve there will be others you'd like to maintain. Sometimes smaller incremental changes are best. This is where it's good to have a Breeding Objective which you can pull out of the draw just to check what you were aiming for in previous years and if there is anything you'd like to adjust.

The use of Australian Sheep Breeding Values (ASBV's) has taken a lot of the guess work out of ram teams and ram purchases. The two projects mentioned above have made use of the RamSelect website. For a small annual subscription, anyone can create an account where you can load in your current ram team, using their management numbers, to review their genetic traits before deciding what you will change or improve. You can also set thresholds on various traits, so you only purchase rams above or below your selected traits value. It also helps to maintain the traits you don't want to change.

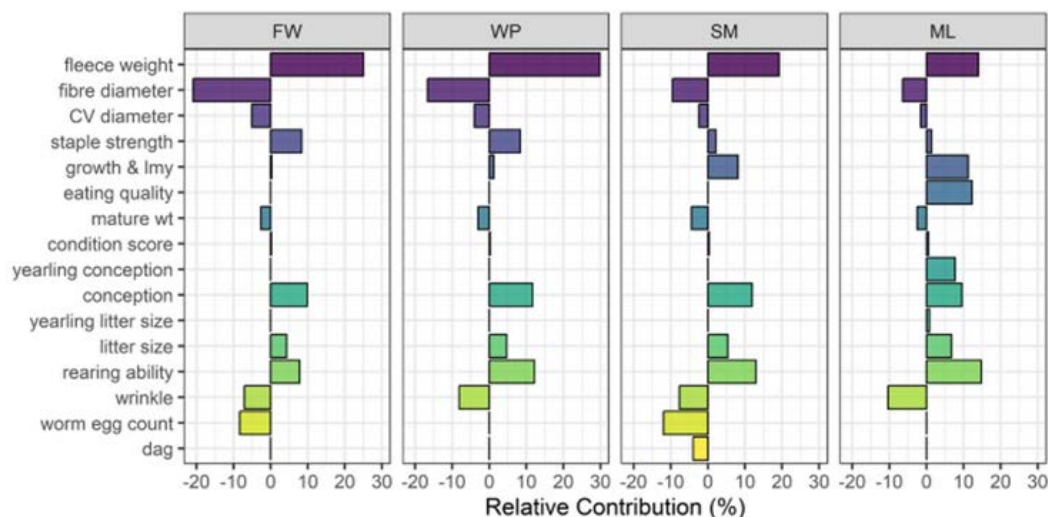
If you don't need this much detail in your breeding decisions, you can use the MERINOSELECT index system. In 2024 Sheep Genetics changed the indexes. The following flowchart helps producers determine the best index for their Merino production system.



Relative economic contribution of traits to the various indexes. The longer the bar the greater the impact on the index.

For example, the Sustainable Merino (SM) index is based on a production system where the income derived is a balance of sheepmeat and wool clip, with a large focus on improving the quantity and quality of the wool remains. Based on a self-replacing Merino flock the production system produces 17–19-micron wool with lambs sold off-shears at a post weaning age. The wool to meat income ratio of the production model is 46:54 and emphasis is included on sustainability traits to reduce wrinkle, dag, and worm egg count. An additional penalty has been placed on increasing mature size in this index.

Summary of the MERINOSELECT indexes



Continued over page.

How to use the chosen index to assist in purchasing decisions:Before the sale

1. Rank animals in the sale on the value of your chosen index.
2. Consider the individual ASBVs which are important to you to create a short list of rams to look at on sale day.

At the sale

3. Look through your shortlist of rams to find the ones that meet your structural and type requirements.

Esperance ram breeders hold a Ram Field Day a week before the sale so you can check your shortlist before sale day.

Hopefully this helps take some of the guess work out of this year's ram purchases. More information can be found on the Sheep Genetics website www.sheepgenetics.org.au.

Or the RamSelect website www.ramselect.com.au.



Summer Field Day wrap: Feedlotting & containment

Sarah Brown, ASHEEP & BEEF

ASHEEP & BEEF's summer field day was held on 27th February 2025, with a focus on confinement & feedlotting. It was a good and informative day out. Around 70 people joined throughout the day. Many thanks to all those who contributed to the field day, these days are a big team effort and it is great to see so many people keen to work together as we keep aiming to learn and raise the bar for livestock production.

David Vandenberghe chaired the field day, welcoming everyone as we made a start at our first stop at Glen Valley in Dalyup. Here, Scott Wandel took us through elements of the farm's program, including silage, confined feeding cattle, virtual fencing, and using retired tarps on dam catchments.

We also heard from Monica Field on a pasture / herbicide trial being run by Farm & General (hopefully a good stop at a field day later this year) and from Darren Chatley (Chatley Livestock) on marketing considerations for confined or feedlotted stock.

Continued over page.

Top: Confinement setup at Glen Valley. Below left: Field day farm map. Below right: David Vandenberghe & Scott Wandel.





The second stop landed us at Wilaust in Cascade, where Farm Manager Tihan Giliomee took us through a sheep confinement and finishing system. This included an autofeeder built by Neville Welke & Son. It was great to see it in action; the autofeeder senses when feed is consumed and refills from a silo.

We also heard from Tennille Norrish (Australian Wool Innovation), Dr Tom Burke (Zoetis) on optimising health in confinement, Tyneal Callus (South Coastal Agencies) on nutritional management, and Jack Nixon (Shearwell Australia) with an eID tag update. Nothing like being surrounded by machinery for a good ag discussion, cheers to the team at Wilaust for setting us up so well in their shed and to Mark Walter for bringing in all the chairs!



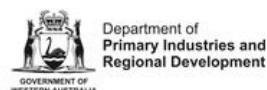
Farm stop 3 was Banksia Park in Dalyup, where Jason Schutz took us through a paddock of veldt grass in fragile sandy soils, plus a finishing system for their pastoral cattle. We also heard from Paul Nenke (Milne Feeds) on pellets and a product for fly control, and Veronika Reck (Esperance Biosecurity Association) on changes to declared pest rates. Finished up over drinks and a good meal at Gibson Soak Hotel. Not a bad day all round! Once again thanks to all involved, including our sponsors, Many hands make light work and it is great we are able to come together to deliver days like this.

1: Scott Wandell cattle confinement. 2 Dr Tom Burke presents at Wilaust. 3 Tihan Giliomee. 4 & 5 Sheep autofeeder. 6 Jason Schutz veldt grass. 7 Pastoral cattle confinement. 8. Wrapping up at Gibson Soak Hotel.



FEED365: Tedera demonstration site final observations

Sarah Brown, ASHEEP & BEEF



As the FEED365 project draws to a close, we have some final observations to share on the Tedera demonstration site in Dalyup at The Oaks, hosted by Mitchell and Demi Greaves. This demonstration site was part of the broader Feed365 project, a collaboration between the Department of Primary Industries & Regional Development (DPIRD) and Meat & Livestock Australia. The project's primary research is being conducted at DPIRD's Katanning Research Station, aiming to redesign livestock forage systems to fill feed gaps, develop new feed base options and integrate them into grazing systems. We should be able to share information on their findings in early 2026.

The Tedera demonstration site was one of several pasture sites in the Esperance region run in collaboration with ASHEEP & BEEF. More information on the Esperance demonstration site results (including the pasture mix demonstrations hosted by Josh & Tegan Sullivan at the Esperance Downs Research Station) is available at www.asheepbeef.org.au/feed365.

If you are interested in growing Tedera, DPIRD and MLA have produced a very useful resource "**Tedera: A guide to growing this perennial pasture legume**", published in 2023. It covers establishment, grazing management, weed control, diseases and pest control, and seed harvesting. Access it via the ASHEEP & BEEF webpage noted above, or follow the QR code.

ASHEEP & BEEF thanks agronomist Monica Field (Farm & General) for visiting the Tedera site in May 2025 and providing the following report to capture final agronomic observations.

Tedera Pasture Trial Report – The Oaks (JA Russell)

Monica Field, Agronomist at Farm & General in Esperance, WA

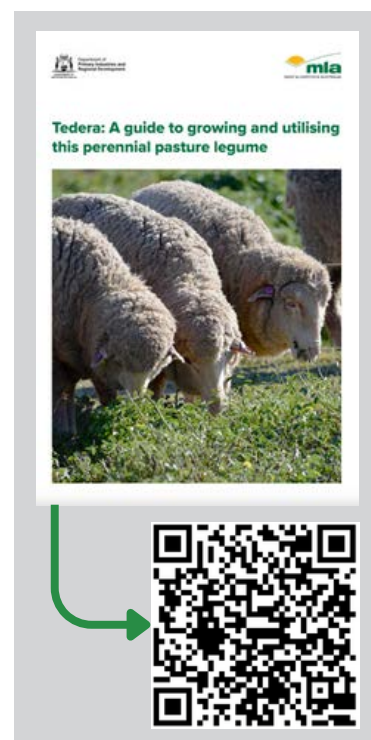
Introduction

A Tedera (*Bituminaria bituminosa* var. *albomarginata*) pasture trial was established in 2022 in Dalyup at The Oaks (a property managed by Mitchell Greaves for JA Russell) to evaluate its potential as a long-term perennial legume in mixed grazing systems. Tedera is noted for its drought tolerance, summer persistence, and capacity to provide green feed during feed gaps. The trial aimed to assess establishment success, weed competition, and plant persistence under broadacre farming conditions typical of the Esperance region. Producers were particularly interested in assessing it in a paddock that was less suitable for cropping. This report reflects my agronomic observations from the trial site and similar properties in the surrounding district.

Site Background

The trial was planted into a long-term pasture paddock located creek-side, with a sloping topography, higher rainfall and little by way of drainage issues, unsuitable for a crop rotation. Site preparation was minimal (initial preparations involved a first knockdown spray on 6/6/22 (3 L/ha Roundup, 1% wetter), a second knockdown on 15/6/22 with insecticide to target redlegged earthmite (2 L/ha Paraquat, 300 ml/ha Le-Mat, 1% wetter), the paddock then sown 16/6/22, followed by pre-emergent herbicides on 17/6/22 (500 g/ha Diuron, 1 L/ha Reflex, 1 L/ha Propyzamide). Redlegged earthmite (RLEM) proved persistent and on 4/8/22 a second insecticide application was delivered (300 ml/ha Le-Mat). While this provided a realistic scenario for broadacre adoption, the lack of targeted weed control and inadequate seedbed preparation negatively affected Tedera establishment. From an agronomic perspective, a more thorough approach to weed and insect management in the year prior would have likely improved outcomes.

The decision was made to spray out the first establishment attempt, and resow. This involved another round of treatments for weed control. These occurred on 22/08/22 (Glyphosate 570 g a.i./ha [Roundup Ultra Max] at [...])



2.5 L/ha), 01/09/22 (2.5 L/ha Paraquat, 25 g/ha Sharpen, 2% Hasten), and on 03/09/22 (pre-emergent, 1 L/ha Propyzamide and 0.5 L/ha of Pyrinex Super to control pests). The Teder was resown on 6/9/22 at 10.5 kg/ha plus Nodulaid Teder inoculum.

Key Observations

Teder struggled during the establishment phase due to several compounding pressures:

- **Weed Competition:** High weed burdens—including kikuyu, doublegees, geranium, capeweed, melons, and volunteer grasses—significantly reduced initial seedling vigour and ground cover.
- **Residue Load:** Heavy pasture residue reduced seed-to-soil contact, leading to uneven germination.
- **Insect Pressure:** Red-legged earth mites (RLEM) caused early seedling damage, further hindering establishment. There was some budworm pressure late in season also in 2023 and 2024. Despite these challenges, isolated Teder plants persisted in certain parts of the paddock. However, by May 2025—two seasons post-establishment—very few active plants remained, and ground cover was minimal across the trial area.

Seasonal Conditions and Weather Impact

The trial's performance must be viewed in the context of the seasonal conditions following sowing. The site experienced two consecutive summers of significantly below-average rainfall, with the Bureau of Meteorology reporting summer rainfall across WA as 20% below the 1961–1990 average—the driest since 2018–2019.

These unusually dry conditions, combined with above-average temperatures, likely restricted root development and carbohydrate storage in Teder plants, impairing both summer survival and autumn regrowth. The dry conditions also limited natural suppression of weed competition. These climatic challenges reinforce the need for robust establishment practices when trialling perennial pastures in variable rainfall zones.

Comparison to Lucerne in Similar Environments

From my experience observing Lucerne establishment in comparable environments throughout the Esperance region, several notable differences have emerged between Teder and Lucerne:

1. Establishment Cost:

Teder establishment remains expensive due to limited commercial seed supply and high seed cost. In contrast, Lucerne seed is more affordable and widely available, and in some cases can be harvested locally to reduce input costs further. It is currently unclear whether this would be feasible for Teder.

2. Weed Management and Herbicide Options:

Lucerne benefits from a well-established suite of herbicide options, providing effective control of grass and broadleaf weeds. Teder, on the other hand, has a more limited registered herbicide package [see page 33 of *Teder: A guide to growing this perennial pasture legume for available options*], making weed control during establishment a bigger challenge. This was evident in this trial, where untreated weed burdens significantly compromised the Teder stand.

3. Cropping System Fit:

Lucerne is often sown under a Clearfield (CL) canola crop, allowing growers to generate income in the establishment year while managing weeds in-crop. Teder has thus far been sown as a stand-alone pasture, making the first year non-productive and higher-risk, particularly in a dry season.



Above: Site Pre-Sowing June 2022.

Below: Teder during establishment year in 2022.



Below Images: Summer 2022.





Above: February 2023. Below: May 2023.



Below images: May 2025.



4. Adaptation and Known Performance:

While Tedera shows promise—particularly for green feed in dry summers—its agronomic package, performance consistency, and long-term benefits are still largely untested in WA systems. Lucerne, by comparison, is well-proven with clear guidelines and known performance under rotational grazing or hay systems.

Conclusions and Recommendations

Although this trial faced considerable challenges and the resulting stand was poor, Tedera remains a pasture species with significant potential in WA's low- to medium-rainfall zones. Its summer activity and drought resilience make it attractive as a long-term legume option.

Further work is warranted, with future trials ideally focused on:

- Reducing seed costs to improve accessibility.
- Refining establishment techniques including weed and insect management.
- Exploring cropping integration and potential sowing under cover crops.
- Quantifying grazing value and comparing long-term productivity and feed quality to other permanent pasture systems.

Continued investment in Tedera research and agronomic development will help determine where this species best fits within WA's farming systems and how its benefits can be fully realised.

Site Host Comments

Sarah Brown, ASHEEP & BEEF

Monitoring of the Tedera demonstration site has now concluded and ASHEEP & BEEF would like to thank Mitchell and Demi Greaves for hosting the site and their involvement throughout the project. Mitchell provided the following comments in relation to the Tedera's performance.

"Overall, the Tedera site had a tough life. Throughout the trial there was not much summer rainfall, which challenged its establishment and held back its potential."

"The soil type of the paddock may not have been what it ideally wanted, it is quite hard underneath and the plants struggled to get roots down and as a result did not get much moisture."

In May 2024, with very dry seasonal conditions in the district, Mitchell observed that the Tedera was coping with the lack of rain better than the lucerne the farm was also growing. The unintended challenge that brought was that temptation was too much – cattle and sheep broke into the paddock and grazed it to the ground, preventing the project's planned measured grazing. A measured grazing of the site was captured between 12/6/23 – 8/8/23, with the results reported in the 2023 season report available at www.asheepbeef.org.au/post/feed365-demonstration-sites-2023-season-wrap or via the QR code to the right.



"As far as the measured grazing went, I was pretty happy with it. We were able to graze it for a fairly long length of time," said Mitchell. "In future I would probably focus on other pasture options, from a cropping rotation point of view. I see the best fit as possibly being a millet over the summer, sown when the opportunity arises. The Tedera takes a year to establish and it can't be grazed hard which is a limitation."

Continued over page.

"The year before the Teder trial began we established Lucerne on the farm. That season we had a soft finish, the Lucerne was sown in August and we were able to graze it by late December. The establishment season clearly makes a big difference."

Final Survey for Producers!

It would be great if producers can please complete the FEED365 project's final survey, capturing information on your current farming practices and interests to inform future research, as well as your feedback on the project. Visit the following QR Code or <https://form.jotform.com/250550166014850>



Key news on carbon emissions

Sarah Brown, ASHEEP & BEEF

Lots of news regarding carbon emissions on the livestock front recently, including that grainfed cattle carbon emissions are now recognised as being much less than previous estimates, and that the red meat industry has stepped away from the "Carbon Neutral by 2030" (CN30) target.

Despite moving away from the target, the industry continues to have an ongoing commitment to reducing emissions. Meat & Livestock Australia (MLA) has advised that R&D efforts will continue. Targets will now focus on emission intensity rather than tonnes of carbon emitted.

ASHEEP & BEEF continues to run our "CN30: Getting started on farm" MLA producer demonstration site, a good source of information for those looking to assess their farm emissions and reduce their carbon footprint. The fundamentals of the project have not changed, we will continue to extend the educational packages and services available to meet industry targets, but we may have to re-look at the project's name! Project facilitator Jan Clawson is a handy point of contact if you have questions: janclawson@asheepbeef.org.au or 0407 990 497.

Grainfed cattle carbon emissions shown to be much less than previous estimates

MLA media release extract (12/6/25)

With the release of Australia's National Greenhouse Gas Inventory Report 2023, the Australian Government has revised the feedlot industry's contribution to emissions. The Department of Climate Change, Energy, the Environment and Water (DCCEEW) has adopted a new Australian-specific equation to calculate enteric methane emissions from grainfed cattle following research conducted by University of New England (UNE).

This research was initiated and funded by Meat & Livestock Australia on behalf of Australian Lot Feeders' Association (ALFA) and revises the previous **estimates of enteric methane emissions from Australian feedlot cattle downwards by 56 per cent on average in the last five years, and 57 per cent in 2021-22.**

The National Greenhouse Accounts previously used the Moe and Tyrrell (1979) equation for predicting the beef feedlot sector's methane emissions. This previous equation used data from dairy cattle in the United States, where diet and production systems are markedly different from that of modern grain-fed beef cattle in Australia.

According to MLA Managing Director, Michael Crowley, the results gave the industry a much more accurate picture of the industry and path forward for addressing the Australian feedlot sector's emissions. "The development of an Australian-specific methodology for calculating Australian grain-fed cattle emissions is a helpful step-forward for the feedlot industry," Mr Crowley said. "As technology has improved over time, measurements have become more accurate and now we have proven thorough research that grainfed cattle have lower emissions than previously thought.

"The grain-fed sector is adopting sustainable practices such as reducing methane emissions through advanced feed and management strategies.

"To have a more accurate method to calculate and analyse our emissions, we can focus more closely on addressing enteric methane emissions, making our product even more environmentally sustainable."

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• September •

**Next ASHEEP & BEEF
Committee Meeting is
scheduled for
SEPTEMBER 2025**

Contact a committee or staff
member to raise an item.

UPCOMING EVENTS

WALRC Improving Sheep Enterprise Resilience Through Science - 24 Jul (Walebing)
WALRC Getting the Best Out of Cattle in the West Midlands - 25 Jul (Gingin)
DPIRD / ASHEEP & BEEF Kikuyu Toxicity & Improvement Workshop - 29 Jul (Esperance region)
Grower Group Alliance Forum - 31 Jul to 1 Aug (Perth)
ASHEEP & BEEF Winter Walk - 6 Aug (Esperance region)
Farmanco AgriBalance Workshops - 1 Aug (Northam), 4 Aug (Lake Grace), 16/17 Sept (Albany), 31 Oct (Narrogin)
Dowerin Machinery Field Days, 27-28 Aug (Dowerin)
Grower Group Alliance Not-for-Profit Governance Workshop - 12 Aug (Albany)
ASHEEP & BEEF Spring Field Day - 18 Sept (Esperance region)
LIVEXchange Conference - 26-27 Nov (Perth)
LambEx Conference - 8-10 Jul 2026 (Adelaide)

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