



CLOVEN HILLS

450 Haydens Rd, Nareen VIC 3315

Purpose bred for greater lamb production

"Flexible, profitable, sustainable"



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Keeping your eye on the future while not forgetting the key profit drivers is key to running a genetics business where it can take a long time to implement traits depending on their heritability. In maternal genetics for prime lamb where we are looking at a considerable number of traits (42 ASBVs plus as many physical characteristics and structural scores) there are also a lot of trade-offs. Providing you this information so you can decide which traits and indexes will be the tool to assist your business objectives is what we aim to do.

As the world wants more of everything it's easy to get lost in the buzz of the new and forget the key underlying drivers.

As we identify animals and select animals that have the newly sought trait it is also essential that we don't shed the hardiness, and 30 points of productivity we have made in fertility, growth, and carcass along the way.

Hence, in this newsletter we introduce some of our newer team members that have joined us in the last few years, as we have grown and haven't been able to do everything ourselves. Specifically, Dr Tom Granleese has been invaluable ensuring we have an outside critical eye on our genetics program.

Secondly, we have had Kristy who some of you know as she gives us a hand with our communications, interviewing some of our clients to hear their experiences.

NEWSLETTER | SEPT 2021

You can put as much gloss on stud sheep as you like, but it's collecting the information and culling the animals that don't perform or handle the conditions. We've done plenty of that from running ewes under water at Yambuk, to having no feed under blue gums and more often than not, 6 months of summers that go right through to winter, where it's containment feeding.

BACKGROUND

Developing solid foundations to build and grow a productive and profitable business is something that we are passionate about.

In our former lives, Kate started new businesses with GrainCorp and Syngenta, while Chris did an industry PhD, looking at how to build the soil fertility for farmers in the cotton industry.



Nutrien
Ag Solutions*

Webb & Woodiwiss
LIVESTOCK MARKETING

RAM SALE ▶ TUES 5 OCT 2021 @ 10:30AM
OPEN DAY, TUES 23 SEPT ▶ BOTH AT CLOVEN HILLS, 450 HAYDENS ROAD, NAREEN

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We were keen to put this into practice for ourselves and made the move back to Cloven Hills in 2007 to take up this challenge.

More than 40 years ago, Kate's father, John Porter, was among the first importers of quality Coopworth sheep to Australia and in transition to a Composite line, recognised the benefits of performance recording data across his flock, when selecting the best rams and ewes.

Purchasing the family property, we set ourselves the aim to take his work – still in its infancy and relatively ignored by industry – and expand it into a key tool for prime lamb production.

Over the past 15 years, we have worked on developing genetics for profitable prime lamb businesses across Australia for farms that vary - whether it be by rainfall, season, feed base, ewe base, infrastructure or the skill mix of people running them – knowing that it is a dynamic, rapidly changing and exciting industry.

Maternal genetics is a cast-iron pillar for self-replacing prime lamb production.

Hardy and productive ewes have been the foundation for growing our business, particularly given they had to initially perform on largely unimproved pastures, as we started redeveloping our farms.

Practically, we need productive sheep that optimise kilograms per hectare and hardy sheep that aren't as labour intensive.

We want to select against drenching by selecting sheep that carry lower worm burdens.

We want to select for ewes that require fewer interventions and treatments.

Technology has enabled us to drive our genetic gain, through performance recording, selection and culling for the key profit drivers in prime lamb production - fertility, growth, carcass, hardiness and stocking rate.

Collecting data on these traits to inform selection pressure is pivotal to our breeding objectives and from our starting point of just 650 performance-recorded ewes in 2007, we now hold data on more than 3600 animals across two farms.

The last 15 years for us at Cloven Hills have certainly seen us challenge most parts of growing a prime lamb business and reciprocally, anytime you push boundaries, it usually pushes that challenge back.

MateSel is an important tool, because it can evaluate millions of different mating possibilities in minutes.



Peter Schroder inspecting clover, Spring 2020.

OUR TEAM



Dr Tom Granleese

GENETICIST Tom Granleese started consulting to Cloven Hills prior to the 2020 joining program, to ensure the stud's clients continued to enjoy the benefits of up-to-date technology and information, when making their ram and ewe selections.

Previously working as a genomics advisor, Tom is now engaged with the NSW Department of Primary Industries working on several significant projects, including the multi-million-dollar Southern Multi-breed Project for cattle, which will help drive the rate and value of genetic progress in individual beef cattle herds and the beef industry.



Closer to Cloven Hills, Tom is also involved in the MerinoLink and University of New England DNA Simulation Project, working with a group of seed stock and commercial sheep breeders to increase their use of genetic and genomic tools currently available.

The project's aim is double genetic gain in line with the MLA's National Livestock Genetic Consortium's strategic direction by 2022.

To complement the work Cloven Hills does in performance recording and selection on-farm, we engaged Tom to optimise the use of the online Sheep Genetics tool, MateSel, which can match which ram and ewe to mate, to get the best breeding outcomes, while managing inbreeding.

"It's an important tool, because it can evaluate millions of different mating possibilities in minutes," Tom said.

"Initially, Kate and Chris asked me if I could run some MateSel for them, but it's grown from there.

"I'm really happy to work with them – they're progressive in working for what they want and they listen to advice.

"You don't do business with people you don't get along with and we share a lot of the same values and ideas when it comes to this industry."

Tom is our chief advisor on Cloven Hills' future breeding program design in terms of mate allocation using the MateSel breeding program.

He advises on the use of reproductive technologies, such as AI and embryo transfer and is also helping them create breeding values for new traits, such as structure, nose colour and feet structure.

"It's all in the name of improving genetic gain and on-farm profitability for Cloven Hills' clients," Tom said.



Samantha Hockey

MAINTAINING the mountainous database around which Cloven Hills genetics are centred is an ongoing chore, so we are pleased to have Samantha Hockey join the team this year to help with that task.

A chemistry honours student with a Bachelor Degree in Science,

Samantha spent several years working in a chemistry lab where managing large amounts of data was her primary role.

Moving to the Casterton district to be closer to family, Samantha said while the industry was new to her, she was thoroughly enjoying the challenges of her new role.

"I typically spend a lot of time preparing the data that is collected into specific formats, that can be uploaded into the required programs," she said.

"Coming from the city with a chemical background, sheep farming is very new to me and I'm really enjoying learning the processes involved with sheep farming and the ways they use the data they collect."



Nicky Holmberg

PAPERWORK is a necessary evil with any business and Nicky Holmberg has taken up residence in the office with us this year, as chief administrative assistant.

"A mutual friend put us in contact after Kate mentioned she was looking for some help in the office," Nicky said.

"Besides the ram data, there is a significant list of clients – and growing – from right across Australia that they need to keep in touch with, so right now I'm working on those client databases to make sure everyone's details and information are up-to-date, getting ready for newsletter and sale catalogue delivery."

Farming at Dunrobin with husband Darren, Nicky is somewhat familiar with the prime lamb industry, but said she was looking forward to helping to prepare for and attending her first Cloven Hills ram sale in October.

Performance recording lambing crew

Physically collecting all the information and using technology in the paddock and yards to record it is a continual process where many hands make lighter work!

To traverse the hills this year we have Celia from NZ, Maddy from the UK, Callum from the UK and Yoann from France. This fantastic lambing team has recorded 3755 lambs at birth with weights, dates, sex, tags and various scores.



Celia Cummack & Mischief, Maddy Hardon & Holly, Callum Woolston & ram lamb and Yoann Peron.



John Rose has turned his hand with great success for forestry reversion from shearing.



Graphic Designer

Maria Zavaglia worked with Kate at Syngenta Australia for many years and has been running her own Graphic Design business since 2010. Maria has done all Cloven Hills graphics work from the beginning and we are so thrilled she enjoys working with sheep!



Communications

Kristy McDonald has been working with Cloven Hills for around four years, helping us put together the essential communications side of our production and quite a few of our clients will have already met her at sales and open days, or spoken to her by phone.

A journalist by trade, we met Kristy several times before she joined our team, but only knew of her work after a chance encounter.

"Kate and Chris were referred to me by a third party back in 2017 as a 'really brilliant story' about this clever farming couple who were reclaiming a former bluegum property for productive pasture," Kristy said.

"With very little knowledge about the subject, I had an amazing interview with them about the project.

"Their willingness to share every detail of what they had done – a basic 'how-to' – was incredible and we developed a terrific local story out of that interview."

After Kristy did the bluegum story and 'just got' the concepts so quickly, we were really pleased when she was happy to help us on the stud, as again, she loves and grasps the technical and practical concepts that are important to us and our clients.

Now, as well as assisting with the content and structure of this newsletter, she writes all of our press material, including pre and post-sale reports and works with designer Maria Zavaglia, to produce our online and print media advertising.

"I love my subject matter at Cloven Hills," Kristy said.

"I claimed no real knowledge of prime lamb production when I said 'yes' to joining the team, but just like our first story together, Kate and Chris are brilliant at breaking down what they do.

"And what they say just makes sense; their goals and approach to developing their genetic line and then sharing the 'instruction manual' so everyone else can do what they do, is incredible.

"It's great to write so many positive pieces and I think I get even more excited than Kate and Chris do, when I speak to clients and hear all of the histories behind their businesses and their success stories – even the littlest wins – with Cloven Hills."



"Fox & Lillie Rural clients, Kate and Chris from Cloven Hills had the opportunity to watch their wool go through the scour at EP Robinson as part of an exciting traceable brand partnership organised by Katex Trading.

We can't wait to see the results of this partnership so make sure you keep a look out!"

— Fox & Lillie Rural

"Loved seeing our wool go through the scour, thank you all very much for having us and organising.

Always great to understand each step in the chain, and the kids hgave plenty of samples for school presentation too!"

— Kate & Chris Dorahy

ITS ALL ABOUT THE GENETICS

From the small start of 650 recorded ewes, Cloven Hills rams and ewes sold over the past 15 years have produced 1.3 million progeny for farms across the country, with growth underpinned by our genetic gain.

Rams offered at this year’s annual October sale average in the top 2%-3% on the Sheep Genetics MCP+ maternal database – at least 5 points higher than last year’s selection.

With average PWT of 16 (top 5%) and an AWT of 14, they highlight our focus on ‘curve bending’ animals - strong early growth that pulls up at the right stage of development.

Likewise, hardiness and longevity are critical to productivity.

While increasing genetic gain overall, we have also been able to increase fat average by two points, while pushing PFEC to be more negative - despite a negative correlation between these two traits.

We have also increased MMWT by about 4 points.

As we edge each trait higher, we are also managing to do this across a greater number of animals each year and increase our overall commercial production results.

From a longevity perspective, we are road testing our ewes by not only running them at commercial stocking rates 18-21 DSE/ha and condition scores 2.9-3, but 20% or 700 of the 3650 Cloven Hills ewes joined in 2021 were 6-10 years old.

They have a lifetime pregnancy scan average of 177% - this includes ewe lamb data.

Longevity – the numbers

- 20% of our 2021 ewes are over 5 years averaging a lifetime fertility of 177% SIL including their scanning percentage as a ewe lamb
- 945 ewes in 2021, 5-10 years old averaging 7.5 years old, averaging 13.7 scanned foetuses/ewe (including ewe lambs) with an average survival of 85%, marking 11.7 lambs/ewe or 155% marked lambs.

Each year a higher percentage of ewe lambs are joining up at greater cross section of weights and it is good to see this correlating to selection in YNLW.

Ewe Lambs - a quick squiz at what our data says

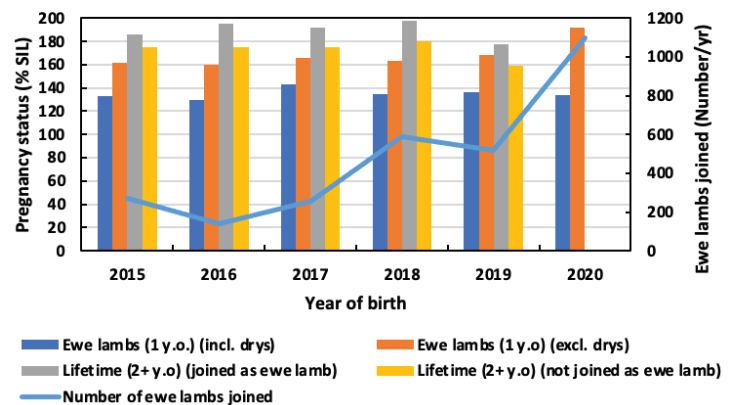
- Ewes that join up as ewe lambs scan 17% more lambs from the age of 2 years old.
- Over the last 3 years 57-72% of ewe lambs out of ewe lambs have successfully joined up as a ewe lamb
- On average, 85% conceive across last 6 years including ewe lambs out of ewe lambs and about 4 single sire mating groups annually.
- We are getting higher SIL rates once drys are excluded, this year it is 192% across 1,100.

Regular readers of our newsletter will recall our focus on one of our star ewes, Cloven Hills – 110042. She is the twin sister to one of our leading sires 110043 and whilst he passed away in 2019 from an injury, 110042 is still going strong at 10 years old.

She remains structurally sound, dag free and her Condition Score prior to lambing in 2021 was 3.3. She has given birth to 23 live lambs in her lifetime, including her most recent 2021 drop twins at 6 and 4.5 kg, respectively. Her average efficiencies at weaning are 210% lambs at 103% of her body weight (kg lambs/kg ewe). She has amazing temperament, and her lambs stick to her like glue within the mob, as she bring them into the yards. This genetic line is well represented in the pedigrees of our sale rams this year and demonstrates our strategy of identifying outliers within our large populations of lambs to find the star performers who will do the job year after year!



Comparison of Cloven Hills' ewe lamb and lifetime ewe fertility



Ranking the top 60 in ASBVs

Table 1. Table of the top 60 Maternal Studs on MCP+ Index- this is taken from exporting all maternal sires with more than 10 progeny from the Sheep Genetics Search Engine and putting them into a pivot table which summarizes them by stud and gives the average MCP+ index and ASBV value for all sires for the stud.

	Count of ID	Average of MCP+	Average of BWT	Average of PWT	Average of AWT	Average of MWWT	Average of PEMD	Average of PFAT	Average of NLW	Average of YWEC
CLOVEN HILLS	65	173	0.6	17.0	13.6	0.1	2.2	-0.2	16.4	-15
DERRYNOCK MATERNALS	1	163	0.3	10.9	8.0	-1.1	2.9	0.9	21.0	-37
GATES	4	161	0.8	17.1	16.8	-0.3	2.0	-0.8	10.5	-29
CASHMORE OAKLEA	66	159	0.5	15.0	15.8	0.0	2.2	-0.4	14.8	-40
NARIMBEROOK	2	157	0.7	16.4	17.9	0.0	2.3	-0.1	13.0	
LAMBPRO	65	155	0.5	14.4	15.2	0.3	1.9	0.0	13.1	-30
MURNONG HIGHLANDER	17	154	0.6	13.6	12.7	0.2	1.5	-0.3	12.5	-10
LEITH	2	153	0.5	15.3	16.0	-0.1	2.4	-0.5		
LANGLEY HEIGHTS	14	152	0.4	14.9	16.0	0.5	3.5	-0.1	-0.5	-47
WOODRISING	1	152	0.6	16.6	18.7	0.1	1.1	0.1	18.0	32
SIL4474	5	151	0.7	14.7	12.9	-0.7	1.0	-1.1	8.6	7
SALWAY	14	149	0.5	14.4	14.7	-0.2	1.8	-1.1	10.5	-6
INVERBRACKIE	48	149	0.3	12.1	13.6	0.8	1.4	0.7	18.4	-20
WARATAH	1	148	0.5	17.1	21.2	0.3	2.8	-0.5	0.0	-47
SOUTH WEST GENETICS	4	148	0.6	14.2	14.5	0.7	0.1	-0.8	15.5	-35
YANGOORA	3	147	0.5	13.1	12.0	-0.9	3.5	-0.3	0.0	
ASHMORE	1	147	0.8	16.3	17.4		3.5	-0.8	-4.0	-20
ELLA MATTA	27	147	0.5	15.8	17.9	-0.3	2.9	-0.3	0.6	-20
STRATHVIEW	6	146	0.5	13.0	15.4	1.0	1.0	0.0	16.3	-15
PARADOO PRIME	5	145	0.5	13.4	15.8	0.5	1.5	-0.4	13.2	
FELIX	3	144	0.5	15.9	19.2	-0.5	2.3	-0.2	4.0	-38
KARRAWARRA	28	144	0.6	13.2	12.1	1.5	0.5	-1.0	3.5	-6
GEMINI	1	144	0.5	16.2	17.5	0.0	2.2	-0.6	-1.0	
FARRER	4	143	0.4	15.8	20.2	-0.6	2.8	-0.5	-0.3	-54
WARADGERY	2	143	0.6	12.6	13.7	0.3	0.1	-1.1	16.5	-15
BOONERAH	12	142	0.6	13.0	14.8	-1.0	1.2	-0.1	14.4	5
PALMERSTON	10	142	0.5	13.5	15.3	-1.4	1.3	-0.6	12.6	-16
DAYS	3	142	0.4	10.4	10.6	-0.5	2.1	-0.4	9.7	1
THE WILLOWS	2	140	0.3	11.1	11.1	-0.2	1.4	-1.0	10.0	
CHROME	40	140	0.5	12.7	15.5	-0.3	1.2	-0.4	10.9	-30
KIRANDA	23	139	0.4	12.7	14.4	2.1	0.6	-0.6	6.0	-7
KASSINGBROOK	3	139	0.4	11.9	13.6	0.6	1.6	0.0	4.7	-39
CASHMORE PARK HAB3	3	139	0.4	14.2	17.3	0.3	3.2	-1.0	-5.7	
MOUNT RONAN	25	138	0.5	12.8	14.9	-1.0	2.4	-0.3	2.6	-30
YARRAM PARK	3	138	0.6	13.4	15.7	0.6	0.8	-0.8	8.3	
TRIGGER VALE	1	138	0.2	11.8	13.3	-1.0	3.3	0.1	-4.0	-59
DORRINGTON KELSO	3	138	0.3	12.5	12.4		1.4	-0.6		
GLENEITH	20	137	0.4	10.6	13.0	1.6	0.4	-0.5	13.3	-32
COOINDA	7	136	0.3	9.3	12.4	0.3	1.0	0.4	17.6	
DEEPWATER	5	135	0.2	8.7	11.2	0.5	1.3	0.4	15.4	-5
PIONEER	8	135	0.4	13.5	15.4	-0.4	2.1	-1.2	-3.7	-44
CASHMORE NUDIES	14	135	0.4	12.5	13.3	-1.2	0.6	-0.8	9.9	-24
JOHNOS	14	134	0.3	9.3	11.7	0.3	0.9	0.5	14.4	-20
NEW ARMATREE	10	133	0.2	8.5	10.1	-0.4	1.3	0.5	14.4	24
BRUK BRUK	2	133	0.3	10.3	6.1	1.6	-1.7	-2.4	8.5	
JAYDEE	3	132	0.3	8.4	8.4	0.2	1.2	-0.6	7.7	

Table 1 cont.

	Count of ID	Average of MCP+	Average of BWT	Average of PWT	Average of AWT	Average of MWWT	Average of PEMD	Average of PFAT	Average of NLW	Average of YWEC
WOOLUMBOOL	7	131	0.4	10.6	10.6	-1.5	1.7	-0.6	0.1	-42
PASTORIA	4	130	0.3	9.1	13.2	1.2	0.8	0.6	12.3	
KOONAWARRA	1	130	0.5	10.3	13.5	0.7	-0.2	0.5	15.0	
DEEPPDENE	1	130	0.0	5.9	7.4	0.8	1.4	1.3	13.0	
KEGRA	8	129	0.2	10.7	14.5	0.9	0.6	0.6	8.8	-30
WARRAWINDI	2	129	0.2	9.5	5.8	1.0	-1.5	-1.8	8.0	
CASTLE CAMPS	4	129	0.2	8.7	11.2	0.2	0.6	0.1	10.3	-34
LUSHFORD	1	128	0.5	6.7	5.0	-0.3	0.4	-1.2		-31
WOMBOOTA	11	127	0.4	8.3	10.6	0.4	0.4	0.2	9.5	-19
GENSTOCK	7	126	0.2	10.5	11.2		0.9	-0.8		
HEWITT	9	126	0.4	8.3	11.4	1.3	0.3	-0.7	9.8	-35
PROBREED PLUS	3	125	0.4	10.6	10.8	-0.8	0.4	-1.1		-3
TENALBA	10	125	0.3	9.3	12.7	1.0	0.7	0.2	4.5	
BAYNTON	2	125	0.2	8.3	12.6	1.1	1.1	0.7	5.0	

10 YEAR REPORT CARD

By Dr Tom Granleese

Cloven Hills has had a long-term commitment to improving the profitability of prime lamb production via genetic improvement. Genetic improvement in key profit driving production traits has been achieved long-term and continues to underpin the Cloven Hills breeding program. Key profit driving traits include early growth, eye muscle and increased lambs at weaning. These key traits can be rolled into the MCP+ index developed by Sheep Genetics. Cloven Hills genetic gains as represented by the MCP+ index is highlighted by the orange line in Figure 1. Over the past 10 years Cloven Hills have averaged 4.2 MCP+ points genetic gain. The 10-year Composite industry average is 2.1 MCP+ points gain (Source: Sheep Genetics). Effectively, Cloven Hills have been improving at double the rate of industry over the past decade. Cloven Hills long-term rapid rate of genetic improvement means they are industry leading genetics.

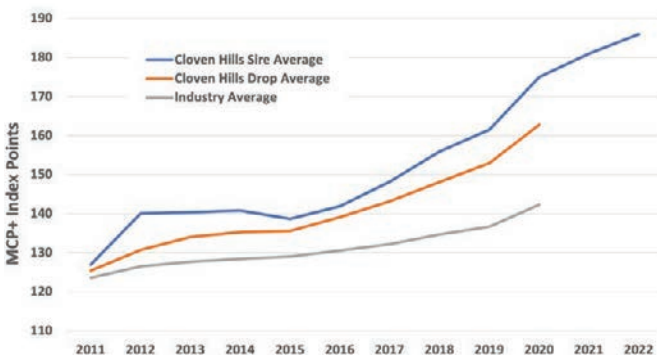


Figure 1: Cloven Hills Sire team average, Cloven Hills Drop Average and Composite Average for MCP+ Index. Source: Sheep Genetics as of 2nd August 2021

How does Cloven Hills achieve such high rates of genetic gain?

Genetic gain can be broken down into a formula seen below in Figure 2. Like all formula that include a numerator and a denominator, if we increase the top part of the equation and reduce the bottom part, we can increase the rate of gain. If we break down the formula to on-farm practices, we can see why Cloven Hills are achieving high rates of gain.

Increasing Selection intensity

- ▶ Use of artificial insemination to top genetic merit sires
- ▶ Flushing elite ewes
- ▶ Mating top indexing rams naturally up to 100 ewes
- ▶ Use of Matesel breeding program

Increasing Accuracy

- ▶ Collection of full pedigree
- ▶ Date of birth, birthweight, and maternal behaviour score
- ▶ Progeny run in large contemporary groups
- ▶ Measurements of full cohorts
- ▶ Genomic testing

Increasing variation

- ▶ Measurements of full cohorts including culls

Decreasing Generation Interval

- ▶ Use of ram lambs in sire team
- ▶ Use of ewe lambs in nucleus including flush programs

$$\text{Genetic gain} = \frac{i_m r_I A_m + i_f r_I A_f}{L_m + L_f} \sigma_A$$

Selection intensity/efficiency points to $i_m r_I A_m + i_f r_I A_f$
Accuracy points to σ_A
Generation interval points to $L_m + L_f$

Figure 2: Genetic gain formula

Why genetic gain from your stud is important to you

When a stud you are sourcing genetics from is achieving high rates of genetic gain, it is important for you as a client because:

- ▶ Your own genetic gain in key production traits follows your sourcing stud (Figure 1). This is important to increase your on-farm profitability
- ▶ There are more rams to choose from that will increase the genetic merit of your on-farm ram battery
- ▶ More rams to choose from means you have more chances at buying rams on sale day or privately in the paddock that will progress your breeding objective

What else are Cloven Hills focusing on?

The Cloven Hills breeding program are committed to continuing to offer high genetic merit rams for their clients for key profit driving production traits and you can be assured by this by seeing the genetic merit of their sire teams in 2021 and preselection for 2022 drop is now occurring (Figure 1 blue line). On top of this Cloven Hills are committed to:

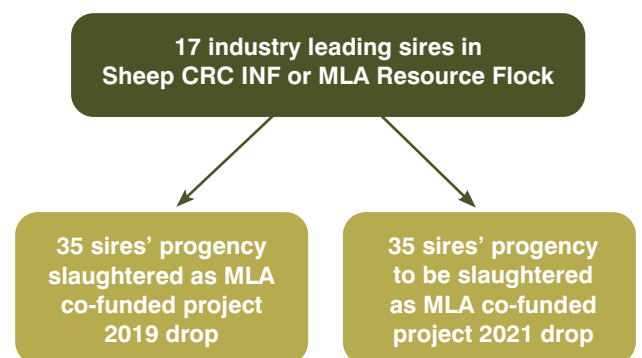


1. Cloven Hills have been actively measuring worm burdens and selection for worm egg count ASBVs.
2. They have been carcass scanning for many years and now using PFAT breeding values as part of their breeding objective.
3. Cloven Hills have been actively seeking genetics from within their nucleus searching for individuals who are genetically high marbling. They have entered rams into resource flocks where progeny are slaughtered. They are also co-investing in gathering slaughter data on their animals bred in their own nucleus. This is an on-going investment.

4. Matesel is a tool that not only optimises every mating each year in the name of genetic improvement in all key traits in their breeding objective, it also helps maintain long-term genetic diversity. Cloven Hills will continue to use this tool as part of their breeding program.
5. Cloven Hills have been scoring structural scores and are looking to turn these raw scores into research breeding values.

Summing up

Cloven Hills breeding program has a commitment to providing its customers with high value genetics. They are also continually tweaking other traits in their breeding program that will provide commercial breeders profitable ewes with longevity.



Tom Granleese is a quantitative geneticist employed by the NSW DPI. He has been privately consulting to Cloven Hills since 2019 trading as Jizzy Genetics.



2020 Hogget in September 2021 with her twin lambs.

MEAT EATING QUALITY RESEARCH PROGRAM

By Dr Tom Granleese

Meat eating quality (MEQ) has been on the research radar for over 10 years now. MEQ traits such as increasing intramuscular fat (IMF ASBV) and decreasing shear-force (SF5 ASBV) have been associated with increase eating quality of meat. In 2021, a clear market signal has been set with Gundagai Meat Processors offering a lamb-grid with lambs over 5% IMF achieving a 50c carcass price premium.

Cloven Hills have been active in searching and breeding for high eating quality genetics within their own breeding nucleus. To discover higher eating quality genetics, progeny of sires needs to be slaughtered and objectively measured. To date, Cloven Hills have had 17 sires successfully nominated into the Sheep CRC Information Nucleus Flock and MLA Resource Flock where progeny was slaughtered and data entered into Sheep Genetics. Furthermore, Cloven Hills have milked some of their latest high-ranking young sires this year's nominations.

All slaughtered animals are genotyped to form part of the genomic reference population. This is an important part of identifying live animals who have desirable eating quality genetics. Genomic testing of live animals can identify genomic relationships with higher eating quality slaughtered sheep. Cloven Hills genomic tests a wide pool of ram lambs each year to search for rams high for IMF.

On top of being part of national research projects, Cloven Hills have co-invested their own money into slaughtering and measuring home-bred lambs sired by their own rams with data submitted to Sheep Genetics. Through the 2019 cohort they identified sire 180887 who ranks in the top 10% in the maternal database for IMF. This exciting sire is also 180 MCP+ ranking him in the top 1% of the maternal database.

Cloven Hills are continuing to search for high eating quality genetics within their own breeding nucleus and have committed to slaughtering progeny from each sire of the 2021 drop. Furthermore, Cloven Hills are actively searching for outside genetics that are high marbling without sacrificing key profit driving production and reproduction traits.

Cloven Hills have had 17 sires successfully nominated into the Sheep CRC Information Nucleus Flock and MLA Resource Flock.

Early results in on Gundagai's world-first lamb IMF grid

Terry Sim, July 21, 2021



Gundagai Meat Processors CEO Will Bartram.

A LAMB producer has achieved a 43c/kg carcass weight premium for a high Intramuscular fat conglomment in the first results from the Gundagai Meat Processors world-first IMF-grid offering.

AUS-MEAT makes landmark lamb IMF decision

Victoria Nugent
@victoriainugent

31 Aug 2021, 12:30 p.m.

News



A lamb intramuscular fat percentage trait has been added into the AUS-MEAT language.



TOP GENETICS, PLANNING, INVESTMENT AND MANAGEMENT ENABLES REPEATABLE PERFORMANCE

Probably one of the most challenging things for all of us, is what we need to do next and the commitment and discipline it takes whether, it is planning, on-time feeding or weaning.

The Victoria Lifetime Stock Monitor Project 19/20 report shows that gross income was 196% above the long-term average, but reciprocally, variable costs were up 209% and fixed costs were up 216%.

This trend is likely to continue, so whilst the outlook for prices and income is likely to stay buoyant, costs of production will remain high.

Moreover, to realise the upside of this potential and catch up on 50-plus years of under-spending by livestock industries, capital investment is required to streamline and modernise operations, particularly to cater for a changing and diminishing agricultural workforce.

Increased income and equity are enabling many of us to do this, but the Catch-22 is that the capital projects (water, yards, sheds, fences etc) for moving businesses forward, add to the workload and drain cash-flow!

Starting from a relatively low infrastructure base, the last 12 years has seen us spend about \$3 million on necessary assets and improvements, with more still yet to do.

GENETICS AND LIVESTOCK MANAGEMENT

At the core of this investment, has been flock fertility which generates numbers and enables flexibility to generate cash flow, depending on climate, financial and labour variables. As you chip away at improving all the key profit drivers by a percentage point, per ewe, per year and then multiply it and compound interest that over 12 years, the results are staggering.



Table 2. Timeline of genetics investment and livestock management at Cloven Hills

Year	Investment and Action	Outcome
2007	Analysis of Australian maternal and prime lamb genetics and Cloven Hills flock. Genetic investment and benchmarking in a large AI program.	Built upon Cloven Hills Foundation flock to introduce new genetics.
2008	All ewes got EIDs Adopted Lifetime Ewe Management (LTEM) Purchased second-hand Racewell sheep handler	Managed ewes by Condition Score, FOO and pregnancy status. Facilitated weighing lambs collecting data on ewes and performing multiple operations in the yards.
2009	Moved from a maternal and terminal flock to one self-replacing flock Pregnancy scanned for multiples and early and late foetuses Started joining for 35 days from 15 th February Wet and dry ewes at lamb marking Started joining ewe lambs Started weaning at 12 weeks	Simplified flock structure Gave priority to multiple and lighter ewes Tighter joining and separate 2 nd cycle pregnancies Identify and cull ewes which conceive but don't rear lambs and ewes with bad udders Ability to improve weaner management and stock marketing
2012	Prepared rams and flushed ewes with lupins	Synchronised conception and improved rate of multiples
2020	Started joining for 21 days from 1 st March. with cover rams put out on 1 st April in conjunction with ewe lamb joining to back up any ewes	Additional 5% conception Only 240 ewes/yr didn't join up in main joining and these were covered on 1 st April to coincide with ewe lamb joining
2021	Post-scanning, lighter multiple bearing ewes (CS < 2.9) put on lick feeders in containment pens for one month to bring them in line with other ewes. Lime, salt and magnesium supplements put in cut out drench drums and hung on fences for ewes in containment.	Birth weights in single, twin and triplet lambs averaged 5.7, 5.0 and 4.3 kg respectively. Survival this year > 86% overall, despite dreadful weather during first 2 weeks of lambing, highlighting benefits of the containment feeding strategy. Extremely low rate pregnancy toxicity and hypocalcaemia with lots of older ewes on board
On-going	Each year rotating between an AI and ET program.	Increased rates of genetic gain (See more on this in article by Tom Granleese)

CAPITAL INVESTMENT

We purchased Cloven Hills from Kate's parents in 2009. Back in 2000, Kate's parents had sold 561 adjoining acres (227 ha) to blue gums. In 2016, we were fortunate to be able to buy it back and set ourselves a five-year goal to re-establish the land to profitable pasture.

Our approach through the whole process has been on soil conservation, increasing soil carbon to conserve the soil and organic matter – the more carbon that is in the soil, the better it is for withstanding the variability in climatic conditions. This is demonstrated by the higher Total Organic Carbon in the ex blue gum portion of the farm, relative to the home block (Table 3). However, when we took on the block, soil pH (CaCl₂) was low (3.9) and exchangeable aluminium concentrations were very high (34.4%)(Table 3), which is unfavourable for germinating seedlings, particularly legumes like sub-clover.

Rather than removing or burning the 'trash' – the vegetation remaining from the blue gum production – we opted for a low-impact, low-cost option, chopper rolling and discing that organic material back into the soil and splitting open the stumps. We then custom built a yakka hoop to pull out the stumps behind our forestry skidder and then a bought a Pederick stick rake to windrow the stumps. We are now able to direct drill rape and short-term pasture species across most of the ex-blue gum land, which is very exciting.

Right from that early stage, the hardiness of our sheep became critical, as we were able to pour them onto the dry, lower-quality feed offered up by vegetation on the blue gum block and supplementary feed them there, while we continued to clear up the trash and stumps over the summer. Even at that early stage, the return from the blue gum block was critical to our overall business, giving the opportunity to spell the home paddocks and engage in essential pasture improvement.

Since then, we have used available capital to put into fertiliser - key applications of lime, phosphorus, potassium, sulphur and nitrogen – and spreading short-term ryegrass and Balansa clover, to increase the quantity and quality of the feed on offer (Table 3).

The addition of critical infrastructure – fencing and water – along with the strategic decision to leave remnant belts of blue gum trees within the block, paired with the genetic toughness of our sheep, has allowed us to continue to run ewes on the block at high stocking rates. The shelter belts have provided essential protection from the elements.



Table 3. Changes in key soil fertility indicators over time at Cloven Hills and adjoining former blue gum plantation.

Sampling Date	Org. C (%)	pH (CaCl ₂)	Exch. Al (%)	CEC (cmol(+)/kg)	Olsen P (mg/kg)	Avail K (mg/kg)	Sulphur (mg/kg)
Cloven Hills							
2008	2.4	4.4	10.7	4.8	10	159	10
2011	3.4	4.7	7.6	5.6	8	152	5
2015	2.8	4.7	7.4	4.7	12	119	6
2018	3.4	4.7	6.0	5.5	19	122	10
2020	3.0	4.9	4.2	5.8	15	189	8
Cloven Hills ex Blue gums							
2016	4.1	3.9	34.4	5.8	6.8	96	5
2018	5.1	4.9	2.5	7.6	5.5	112	5
2020	4.2	5.1	2.6	7.5	7.5	102	12
Targets	>3.0	>5.0	<10	>4	15-18	150-200	7.5-12

Based on our experience at Cloven Hills, in 2018 we purchased an additional 750 acres (300 ha) of former blue gum plantations and, with partners who bought an adjoining 900 ha, started a joint venture, "Rangeview", at Brit Brit.

A blank slate, we learnt from our work at our home block and installed containment pens first, to get a head start on the condition, feeding and pregnancy status management of the ewes there, as well as keeping the remnant blue gum stands in critical locations for shelter. We're seeing amazing survival rates at Rangeview, with the ewes lambing down close to 200 per cent SIL (excluding dries). Virtually every ewe has got a set of twins and bearing the key traits of our genetics, the lambs have got enough thrift and birthweight to get through that first 48 hours. The ewes are strong and in good condition to easily manage twins, on land where there are more foxes and kangaroos than you can poke a stick at.



Custom-built Yakka hoop behind our forestry skidder.



Pederick Rake used to windrow stumps.

Table 4. Summary of Fencing & Water Improvements (2009-2020)

Year	Investment and Action	Outcome
2010-2012	Large project of sub-dividing Cloven Hills to fence off creeks and put laneways throughout the farm. Paddocks fenced to topography, soil type and orientation 77 paddocks averaging 10 ha, excluding containment pens, laneways and conservation areas. (30 paddocks < 10 ha; 8 paddocks ~ 20 ha, 4 paddocks around 30 and 2 > 40 ha)	Smaller paddocks for optimising lambing down of multiple bearing ewes More paddocks for single sire joining program Improved ability to sow down 10-15 % of farm annually to perennial pastures Improve grazing management on hilltops, lower slopes and south and east facing areas
2010	Started installing reticulated water systems and installed Airwell pump with 1.8km airline	Provided water for newly sub-divided paddocks Excluded stock from waterways
2012	Smaller paddocks	Lamb multiple bearing ewes in smaller mobs
2013	Enlarged a spring fed dam in northern part of Cloven Hills from 1 to 10 ML Used laneways and sacrifice paddocks to containment feed ewes	Increased water security in dry years Manage supplementary feeding and spell improved pastures
2015	Enlarged dam on southern part of Cloven Hills from 5 to 10 ML	Increased water security in dry years
2017	Started fencing and water on ex Bluegums at Cloven Hills	Additional area and paddocks for running and lambing down ewes
2019	Started fencing and water on ex Bluegums at "Rangeview" Brit Brit 60km done by 2021	Opportunity to expand operation and holdings in conjunction with partners
2020	Installed a second Airwell pump on the southern supply dam at Cloven Hills Joined northern and southern water systems via Cloven Hills trees. Installed 240 kL tank at highest point Installed 240 kL rainwater tank for house and sheds Completed 10 x 0.8 ha dedicated containment pens at Cloven Hills	Ability to transfer water from one system to the other in case of a failure in one part of the system. Increased stock water stored in tanks to 310 kL. Better capture of winter rain for summer and more water for showers when city cousins come to visit! Improved ability to build feed wedge for lambing (1500-1800 kg DM/ha) even with late opening rains.
2021	Completed an additional 9 x 0.7 ha containment/ single sire joining pens on southern edge of Cloven Hills	More pens for single sire joining groups, rams, pushing up sheep for shearing, crutching etc. and containment feeding options



Weaners in containment pens, Spring 2020 grazing Barley, Ryegrass, Balansa cover sown in July.

INVESTMENT IN PASTURE IMPROVEMENT AND SOIL FERTILITY

In 2008, we started spraying portions (25-30 %) of onion weed affected paddocks so that entire paddocks weren't knocked out and we could still separate ewes by pregnancy status and condition score. We also commenced pasture cleaning for capeweed and silver grass and spray topping barley grass. Prior to sowing down perennials, we used short term rotations of annual rye grass and rape for 2-3 years before starting to sow down paddocks to Phalaris clover mixes. We did try lucerne, tonic and cereals but didn't find them as successful in our country. Standing oats gave us dry matter but not enough protein.

In 2018, we started cutting our own silage and applying gibberellic acid (GA) and urea in the autumn and urea in the spring. Having ewes and lambs in containment pens and buying an Albybone feeder has made it much easier and more efficient to feed sheep bulk supplements like silage, straw and vetch hay.

During the early years, our fertiliser budget was limited as we concentrated on reducing debt and investing in fences and water. However, rather than applying low rates of P across the whole farm, we applied more to some paddocks and less on others. The less fertile/ productive areas were where singles and fat multiple ewes were lambed down. Having hardy and resilient ewes meant that this portion of the flock could withstand being pushed harder. Over time, we have been able to increase expenditure on fertiliser and lime and this, in combination with improved pastures coming into peak production and an ability to build feed wedges, has significantly increased the amount of feed on offer for lambing ewes (Table 5).

Table 5. Changes in soil fertility, fertiliser input and Feed on offer (FOO) for lambing ewes between 2008 and 2021 at Cloven Hills.

Years	Soil Fertility (Olsen P) (mg/kg)	Fertiliser Input (kg P/ha/yr)	Starting FOO (kg DM/ha)
2008 - 2012	5 - 8	8 - 12	900 - 1200
2013 - 2018	10 - 12	10 - 15	1200 - 1500
2019 - 2021	12 - 15	15 - 20	1500 - 1800



Albybone feeder has improved efficiency of feeding bulk supplements to ewes.

ADEQUATE INFRASTRUCTURE FACILITATES OPTIMISING EWE CONDITION SCORE

Condition score management is something people think is a separate job you've got to do, rather than building it into the operation. Scanning is the perfect time to do it – you've got people standing around waving their arms, you may as well put a raddle in their hand and get them to condition score and mark the lighter ewes. We also vaccinate ewes at scanning.

Our whole production system is based on managing ewes by condition score, pregnancy status and feed on offer. Containment feeding has given us the ability to manage stock with precision, to achieve our production targets, whether pregnancy scanning, condition or feed on offer.

Research is clear that twin-bearing ewes with a condition score of 2.9 have a significantly lower chance of successfully rearing lambs.

We initially used laneways and the blue gum blocks to containment feed and spell the improved pastures at home, but in 2020, we finished the construction of centralised containment pens to supplementary feed livestock – and it has been revolutionary.

Without knowing what kind of season is coming, we have found using containment feeding a valuable tool for achieving essential production targets, particularly with even more uncertainty about climate variability.

We locked up ewes for two periods of six weeks, after Christmas until the first of March for joining, let them out for joining for 21 days, then brought them back into containment once we pulled the rams out.

Using the containment infrastructure, the ewes were split into condition score and pregnancy status groups and fed accordingly.

'Light' (CS < 2.9) multiple-bearing ewes were put on lick feeders for four weeks, post scanning and all ewes were held in containment until early-mid June in both 2020 and 2021, then set stocked until lambing (late July) on starting FOO of an average of 1800 kg DM/ha.

By controlling the feeding in containment, we were able to build that feed wedge and giving it a dose of Gibberellic acid and Urea four weeks before lambing, it has become self-perpetuating.

Ewes have been able to cruise through winter with great lamb survival because their nutritional requirements are being met. Moreover, it has grown a bigger spring feed wedge, creating more options for weaning and/or silage paddocks.

TOP RANKING GENETICS UNDERPINS REPEATABLE PERFORMANCE

In summary, we have been able to achieve repeatable performance over many years, despite seasonal variability. This is a consequence of strategic investment in genetics, capital and infrastructure, as well as planning and management:

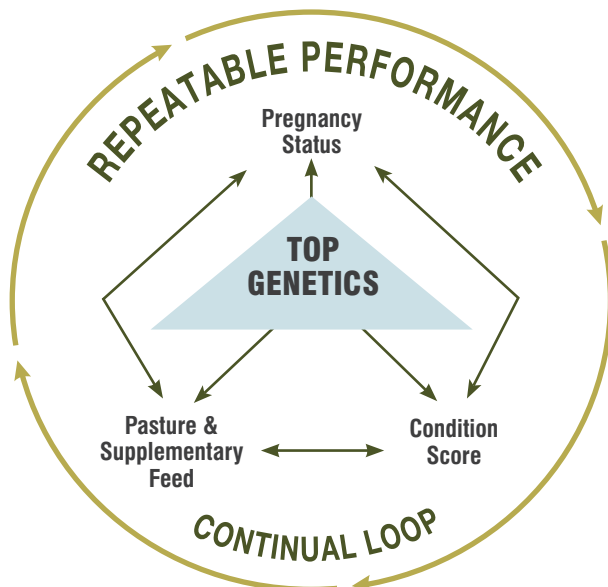
- ▶ Top performing genetics to provide fertility, growth, carcase, resilience and flexibility
- ▶ Simple flock structure enables us to manage stock by Condition Score and Pregnancy Status
- ▶ Laneways, smaller paddocks for optimal lambing densities, weaning, single sire joining and containment feeding.
- ▶ More paddocks require reliable water storages (tanks and dams), pumps and reticulation systems.
- ▶ Increasing soil fertility (P and pH) and establishing perennial pastures then managing them in summer and autumn to maintain ground cover and build a feed wedge for winter and spring.
- ▶ Equipment, pens and equipment to prioritise feeding and do it more efficiently.

These investments have enabled us to build a production system focused on:

- i) ewe condition score,
- ii) ewe pregnancy status and
- iii) Nutrition, namely Feed On Offer (FOO) and supplementary feeding

These three pillars have lead to consistent and repeatable results, despite variable seasons:

- 185 SIL % (Mature ewes)
- Ewes set for lambing on 1500-1800 kg DM/ha
- Survival > 85%
- Weaning 150%



FEED RATION

We have been finishing lambs since 2009 and from 2011 have been making our own ration with a split bin 40 bag Farmmate and now a 70 bag Steele feeder. The question always is what proportion of cereal and legumes to add to the mix? Instead of guessing based on individual feed test results we weighed varying proportions of barley and lupins and sent them away for wet chemistry analysis. The results showed that a mix containing 55% barley and 45% lupins gave a ration for lambs which optimised metabolizable energy (ME) at 12 MJ/kg and Crude Protein of 16 % (Table 6). The rations we had been feeding had been restricting Protein intake but once we increased the ration to 45% legumes, growth rates were amazing at 450-500 g/day. The extra \$10-20/t and \$1500 for sample analysis were well worth it in pushing the lambs out the gate faster and yielding exceptionally well (48-50% on full weight) at the abattoir.

Table 6. Effect of changing the proportion of barley and lupins within the feed ration on Metabolisable Energy and Crude Protein for lambs.

Barley/ Lupins (%/%) as fed	Metabolisable Energy (MJ/ kg DM)	Crude Protein (% DM)	Cost of ration** (\$/t)
70/30	12.8	13.9	309
60/40	12.3	14	326
55/45*	12.5	16	334
50/50	12.5	18.2	342
45/55	12.1	18.9	350

* sweet spot fattening ration to deliver ME of 12 MJ/kg and CP of 16% to lambs

** based on barley and lupins prices of \$260/t and \$424/t delivered



There will always be some variation but having the key management practices in place alongside the infrastructure that enables you to undertake efficiently, the less challenging it is to deliver consistent results. Different things work for different businesses and there is always more to do, but we hope this gives some insight, even if it's one small point that helps your business to achieve its objectives.

GENETICS TO SUIT ALL BUDGETS AND TARGETS

In sync with the livestock markets over the past 12 months, our ram sales continued to break all of our records, with buyers recognising the value of our data in enabling them to select genetics specific to their needs and translating to increased profit in their paddock.

We speak often about the resilience of the farming sector and despite issues across many industries, due to the Covid-19 pandemic, the prime lamb industry weathered the storm well, pleasingly resulting in a sharp rise in demand for Cloven Hills genetics.

At our main October sale, Australia's highest-indexing maternal ram offered at auction, led an all-star cast as we cleared 328 rams to a top of \$7800 and average \$2473, to more than 100 new and returning clients from across the country.

These results reaffirm our confidence in the work we do, engaging technology, data and performance recording and collaborating with industry research and development to produce quality genetics, tailored to provide each client - regardless of their starting points - with the tools to meet their production and business objectives.

The first fall of the hammer saw \$5600 paid for CH19-0119 - \$1100 more than last-year's top-priced ram - and shortly after, Yarram Park picked up the two top-priced rams at lots 11 (\$6800) and 28 (\$7800).

Lot 28, CH19-1505, was the country's highest indexing maternal ram offered at auction, representing the four traits key to the stud's success.

His MCP+ 180 is underpinned by BWT 0.4, PWWT 16.9, AWT 12.2 and YNLW 38%; with a dress score of 3.1 he is the whole package for those most desirable traits for prime lamb production - fertility, hardiness, growth and lean meat yield with moderate adult weight.

Our first summer ram lamb sale was held on-farm in January and our second was held in Tasmania in February with client, Helen Baillie at 'Strowan' in Tassie.

The home sale blew us out of the water, with 100 per cent clearance to an average \$1483 and top of \$4000 to Lachie Ranken at Boonerah, Hexham.

We were delighted, as always, to have return client, Celia Scott (Ardmeen Farms) in the bidding and taking home nine rams.

Celia, a second-generation commercial producer, based near Pooliajelo, Victoria, firmly subscribes to the value of performance recording and the use of ASBVs in ram selection, to increase the genetic gain in her flock.

"The figures that Kate and Chris have on their rams, very few studs in this region come close to what Kate and Chris are achieving with their rams," she said.



Celia Scott (Ardmeen Farms)

"We are only a commercial property, so we bought some of the one-and-a-half year-olds this year, but they're virtually what we were buying at the October sale, without have to spend a lot more."

Celia said while Cloven Hills rams were highly-valued by studs, the commercial value of the genetics could not be underestimated.

"As a flock, we're improving each year, putting weight on the lambs and through our own management, we've got a few more things right now," she said.

"Because the breeding is what it is, we've lifted our ewe lamb joining hugely and a big part of that is having the genetics where they need to be; we're going from strength to strength."

She said the final test - the feedback from her end clients, including ALC, Woolworths and TFI - reiterated her confidence in using performance recording and ASBVs as a primary selection tool when purchasing Cloven Hills rams.

"We're getting great feedback on our product, the data is coming back very even and (the carcasses) are hitting every spec," she said.

"In terms of fat cover, too high can occasionally be an issue through the processors but that's something we're not finding as an issue with our product."

Our second annual Tasmanian summer ram lamb sale, held at 'Strowan' in February, set another new record, selling 76, 2020-drop rams to a top of \$3000 and average \$1507.



(L-R) Mark Web, Bill Scott-Young, Kate Dorahy and Chris Dorahy

Our Tassie agent Mark Webb, Webb and Woodiwiss Livestock Marketing – who uses our genetics in his own operation - was delighted with the result.

“This is the third year selling rams in Tasmania and the Cloven Hills’ genetics and reputation has certainly gained popularity over that time,” he said.

“Cloven Hills sheep and genetics really suit Tasmania, with the topography and climate we have here very similar to their region in south-west Victoria.”

“One of the key (breeding) traits that Cloven Hills has concentrated on is the adult ewe weight.

“We have a lot of farming enterprises that run large numbers of ewes here in Tasmania, under high stocking rates, so the Cloven Hills genetics is leading the way in stocking rate efficiencies.

“That moderate adult weight is a market ‘must’, but an OH&S issue as well for sheep handling and the benefits in those respects, of using the Cloven Hills genetics, is certainly recognised.”

Being our second official sale in Tasmania, we were very pleased to see the increasing interest from the market and the broad range of interest, from paddock-to-plate hospitality operators, through to commercial producers and stud principals.



Cloven Hills’ 3rd generation, Bridie, Harry and Rupert love lamb marking



Exhausted mother - she must also be tired of home / remote learning!



CLIENTS TELL THE STORY

Alister Woods – ‘Craigwood’ Vic



IN JUST its second year of lambing with Cloven Hills genetics, Alister Woods' family property, 'Craigwood', is already achieving 80 per cent of its optimum production targets and increasing its investment return.

A firm subscriber to the use of ASBVs in buying and breeding selection and seeking several criteria – both necessary and

desirable – for his production objectives, we first met Alister at a Sheepvention stall and the rest, as they say, is history.

A soldier settler at Shelford, Alister's grandfather farmed fine Merinos, handing the property to his son Brian, who, now farming alongside Alister, has made the transition from Merinos to a self-replacing Composite flock – with impressive results.

"We had been looking at making the change for about four years, we lamb from now into September and with two falls of (rain) 60 mil's a few days apart in 2017 lambing with Merinos was very challenging, but the wool market prices were quite good, so it probably wasn't the time," he said.

Two years later however, the Woods decided it was time for a change.

With the aim of developing a self-replacing flock, eventually selling ewe lambs, the second and third generation farmers had a clear picture of what would – and would not – work on their property and for their desired outcomes.

"We were wary of the size of the ewes, that was the one strict criteria we had," Alister said.

"At 65 kilo ewes, coming from Merinos, we wanted to stay as close as possible to that size.

"We also wanted to work with a stud that was not too far away from our place."

Our first meeting at Sheepvention laid the foundation for a successful business relationship, from the outset.

"They seemed pretty progressive and fit into our research into where we wanted to go," Alister said.

"We'd been buying Merino rams using ASBVs, been doing that for several years with Merinos ... we can see how the data is definitely an advantage to the industry.

"We called Kate and she invited us up for a visit, we had a drive around (Cloven Hills) for probably two or three hours.

"It was a month before the ram sale and we were impressed with the lambing percentages and the operation they were running.

"Kate got us in around the kitchen table, showed us all of the data – it was just amazing how much data they had on each animal - and we thought, that's the way we want to head, how passionate they are about it."

A month later, Craigwood purchased four rams and to complete their first breeding cycle, 200 ewe lambs from another long-time Cloven Hills client.

"We spoke to Kate and Chris about what we thought we were going to buy and they did say there was plenty of options there for us," Alister said.

"When the sale came, we were confident we knew exactly what we were buying.

"And we bought (Cloven Hills ewe lambs), instead of trying to breed over our Merinos because it would take too long to get where we wanted to be."

And the wait was shorter than anticipated.

In 2020, the Woods joined 100, one-and-a-half-year-old ewes and 200 ewe lambs and weaned at 125 per cent of joined ewes.

"We had no experience with Composites and not a lot with ewe lambs," Alister said.

"We're lambing again and it's looking very good.

"The biggest thing we've realised from the first year, after doing some research and watching Kate's info sessions on Zoom, is that when we ran the singles, we probably had them in too-good condition – we had little trouble lambing with the twins, but the most trouble was with the singles and in particular the size of the lambs, because we probably had them too fat, to be honest.

"Coming from the Merino side of things, it doesn't matter if they're singles or twins, even the single ewes, you've got to keep the feed up to them.

"With the Cloven Hills Composites, it's amazing how little feed you have to have, to run singles.

"The twins were easy though, minimal interference and probably the easiest, best lambing we've seen."

And the numbers on paper, are already telling the story.

"We have also done just some basic sums on the difference between Merinos and the Composites, income-wise," Alister said.

"Working it out, we ran through, just with the marking percentage, the sale of the sheep, the sale of the wool, working it back to a ewe dollar value, the Composites are ahead already."

Building on last year's success, Craigwood purchased four rams at the 2020 sale and took home two ram lambs from the Cloven Hills' summer sale and joined 700 Cloven Hills bloodline ewes - and the season is already looking up.

"The aim is to eventually join 2000 ewes, and we have set a goal 3000 lambs and at that point, we'll be selling ewe lambs," he said.

"We couldn't be happier with where we're headed."

Helen Baillie – 'Wesley Dale' & 'Strowan' TAS

STRAIGHTFORWARD lambing, high fertility, "amazing" lamb survival and ease of selection.

Those were Helen Baillie's assessments after her first year with Cloven Hills genetics and after four years, she continues to see those results – and more – at her Tasmanian properties.

Originally running heavy ewes on Welsey Dale, Mole Creek, Helen found that difficulty in handling and the need for lower stocking rates were impacting negatively on the farm.

"With the big ewes we were running earlier, the large animals were too big to handle, the shearers didn't like them and we couldn't produce as many kilos of lamb per hectare as we could with a smaller animal," Helen said.

Looking for a high stocking rate, compared to other studs in the district, Helen's needs were simple – a moderately-sized animal which would lamb easily, grow out quickly and produce the numbers required to keep her business successful.

In her first season with Cloven Hills, her stud ewes were joined exclusively to seven of our rams and the results spoke for themselves.

"There was certainly no issue with the lower birth weight; survival was excellent and in the first few weeks the growth in the lambs was incredible," she said.

"And we didn't pull lambs, we don't pull lambs, particularly in the studs and we didn't have a single problem with lambing, it was just straightforward and easy."

And those results continue in 2021, as Wesley Dale and now, Helen's second property, Strowan, applies strategic management strategies, including nutrition assessment and condition scoring, to make the Cloven Hills genetics really work for her.

"Everyone is really pleased with lambs and at the (2019) sale, I literally got a call from (livestock manager) Barry, that day, telling me to bring back more of 'these' – rams that would do what our other Cloven Hills rams were doing ... lots of lambs, easy lambing and tough," Helen said.

"They were clearly better than what we'd had before and they keep getting better.

"The ewe lamb sales have been really good, the last two years have been great and this year has been a massive year



Andrew Sloan, Rick Smith, Max Cameron and Helen Baillie with the Dorahy family after the 2020 ram sale.

for us, because the marking rates are up and the stocking rates are up.

"We've got 8000 ewes at Wesley Dale ... we had 5000 when we started with Cloven Hills ... Strowan there's 4500 and we're still pushing the numbers up there, so we'll have 5000 this year."

A key attraction for Helen at Cloven Hills, is the ease of 'shopping' for rams that hold the key profit drivers, as well as the additional traits that fit to her production needs.

"I like that when I look at Chris and Kate's rams, if I want to select for weaning weight or other characteristics, I don't have to worry about fertility or toughness because those numbers are all up where I want them, I don't have to forego those basic things, because I know they're there ... they're staples in every Cloven Hills ram," Helen said.

"I can focus on picking my 'bonuses' and I'm not missing out on those other key things that are needed.

"And I guess the thing with that, is that if you don't have a particular 'wish list', you just want the basic, necessary things, you can buy a really good ram without having to spend a lot of money."

And the after-sales service rounds-out the wins for the Tassie prime lamb producer.

"That really is the thing, somebody on the end of the phone that I can ring up and chat to, ask what best way is to do this or that," Helen said.

"And that's one of the main things you want when you're paying for genetics - that follow up and information.

"We want some level of control over what we do, which is why we breed our own lambs and all we needed to do with Kate in the first instance, was explain what we wanted, what we needed to do and Kate and Chris helped us select and brought that to us.

"Kate is incredibly good to talk to, she's well-informed and happy to share every bit of information and knowledge she has, to help our business.

"She has shown us how to use the data, so we can use it to consider our selections (and) there is so much information available on the rams and their sale catalogue is extremely well put together – even if you are not going to see the rams, there is enough data in the catalogue to make a sound decision on buying a Cloven Hills ram."

Mareeta Cox - 'Coojar' VIC



FOR Mareeta Cox's one-woman operation 'Coojar', low-management – including lambs and ewes that survive tough conditions – is a must.

For more than a decade, the second-generation farmer has been buying and using Cloven Hills genetics in her prime lamb production and is reaping the benefits, with consistently "ideal" production annually and her ewes in-demand at auction.

"(This year's) ewes scanned at 164% over a 24-day joining, weaning over 155%, which is ideal," she said.

"Ewe lambs scanned at 139% over a 33-day joining, with none taken out for low weights."

She said the variable land and climate at Coojar, made the resilience in the Cloven Hills genetics, including moderate adult ewes which maintained condition under harder conditions, ideal for the tough country.

"I use stocking rates around 20 (Dry Sheep Equivalents) ... the Cloven Hills growth rates are really good (and) this is early finishing country with gravel hills, gravel or sandy, there's not much tabletop, so the toughness in the sheep is a must," Mareeta said.

"The ewes are in containment later in the summer and probably getting fed straw, they're run hard but they maintain that good score and the worm egg counts means we only drench once a year, for the middle-aged ewes.

"The moderate adult weight is also a big attraction because they're easier to handle, shearing is not a problem."

And having much of the hard work in selection and genetic development done prior to her ram selection is the bottom line for Mareeta, in sticking with Cloven Hills.

"The main thing I like is they're always very choosy about their genetics, I know that Kate's always looking for the best genetics in her AI program, always trying to improve the genetics," she said.

"And with maternal Composites you know what you are getting, one line of sheep, they're hardy and they're tough.

"You can get your production where you want it to be and have animals with good temperament – that's another 'must'."

Shane Kelsh – Lucindale SA

OPERATING a commercial prime lamb production alongside a second labour-intensive business, Lucindale's Shane Kelsh has one requirement for both enterprises – simplicity.

Moving to Lucindale from the west coast 12 years ago, Shane leased grazing land in the South East with the aim of running around 2000 breeding ewes.

Starting out with Merinos and producing first-cross lambs, the extended wet seasons experienced by the district, combined with the varying qualities of leased land, proved problematic in maintaining a consistent production across his flock.

Five years ago, he switched to Cloven Hills Composite stock, reducing maintenance and producing quality lamb for his buyers, including Safeway, as well as around 400 ewe lambs which are sold to other producers, each year.

"Sometimes on lease country, you chase what you can get ... that determines what you run," Shane said.

"One 800-acre block that we've got is really wet; for about six to 10 weeks it's under water each year ... we did run Merinos to first-cross lambs, but we found it really hard on them.

"We made the switch to Composites, which has simplified the operation ... low maintenance (and) we don't have to buy-in ewes.

"We bought a few ewe lambs off a bloke in the Western District, I reckon he used some Cloven Hills rams, that's what got me going there.

"When we first started, we were putting (Cloven Hills rams) over the first cross and some Merinos to help build our numbers up, from the start we never really had much trouble with (lambling).



"As we've gone on, the lambing is getting easier and easier, we select for lower birth weight, but they're still tough, grow out well.

"All up we're scanning around 170 per cent and that's including the ewe lambs; last year we did 250 ewe lambs and 1600 mature-age.

"I run a livestock transport show as well, so simplifying things back to pure Composites has made everything so much easier.

"You generally have a dry Autumn in this area, so feed out barley at that time, so (the ewes) are kept on feeders during lambing and we stop feeding around the end of June.

"We generally run them a bit lighter condition, things go a lot easier."

He said the ability to purchase rams to suit his operation, without blowing the budget, was also a bonus, with Cloven Hills stock.

"Last year we paid two, two and a half (thousand) for our rams ... it's getting increasingly harder to get what you want at that price and we got a couple of private selection rams in the last year to top-up," Shane said.

Jo and Johnno Jenkins - Banemore, Peshurst, Vic

Using our genetics has significantly improved the productivity of Jonathan and Jo Jenkin's prime lamb operation at Banemore, Peshurst, Vic.

Originally running a mix of first-cross and Merino/Corriedale-cross ewes, Johnno and Jo made a change to a self-replacing maternal composite flock eight years ago.

They are gradually building numbers up, with the aim of running about 4500 maternal composites on their 1000-hectare property, alongside 400 commercial Poll Hereford cows.

This season they have joined 2600 adult ewes and 1200 ewe lambs.

Depending on their requirements, the Jenkins buy five to 10 Cloven Hills rams annually, selecting for structural soundness, fertility and growth in balance with maintaining a moderate ewe size.

"We are a big believer in ASBVs and in the integrity of the Dorahys selection process and performance measurements," Johnno said.

"We want a low to moderate birth weight, good weaning weight and post weaning weight, and a low worm egg count to reduce the amount of drenching we are doing.

"Ewe hardiness is also very important, we have black country that gets very wet and some stones, so we need a robust sheep that can cope

"We also select for fleece quality as we are hoping to retain some of the wool quality we had with the first-cross ewe base and keep the wool measurement below 30 micron."

Ewes are joined for four weeks in February to start lambing in mid-July and Johnno has been pleased with the increased fertility of the composite ewes, with this year's preg scanning rate at 165%.

"Their maternal attributes are excellent and they are certainly more robust and resilient," he said.

"The lambs are weaned in December and the ewes are back in condition score three at joining with minimal supplementary feeding over the summer."

Ewe lambs are joined in April for a September lambing and they have been retaining about 1000 ewe lambs each year to increase numbers, but in the future plan to sell surplus ewe lambs as breeders.

Johnno said the composite wether lambs were also extremely marketable and performing well over the hooks.

A portion will be sold on AuctionsPlus in December at 38 to 40 kilograms live weight, while the remainder are weaned, finished on summer crops and sold to local processors at an average dressed weight of 18 to 20kg.





Rick Morris will offer 2000 quality ewe lambs later this year.

Rick Morris, Kangaroo Island, SA

WITH “plenty of natural selection” provided by the conditions on Kangaroo Island and moderate adult size a sheep production “must”, Rick Morris has found the ideal combination of toughness, fertility and growth in Cloven Hills Composite genetics.

Running a flock of 5000 self-replacing maternal Composites on 900 arable hectares, this year Rick will offer 2000 quality ewe lambs for sale, backed by Australia’s highest-ranking maternal genetics. A sheep producer for 23 years, Rick set out two years ago to find a line of genetics to both grow and refine his production to meet modern prime lamb market demands.

“I was chasing their lower adult weight, as well as something in-keeping with those key profit-drivers in the (Australian Sheep Breeding Values) system – twinning and growth rate, toughness, fat and muscle, negative on worms,” he said.

“Trying to keep weaning percentage up while reducing adult weight is a real challenge, that’s where the muscle, fat, early growth and early maturity come into it.

“It was really important to keep a cap on that adult weight, for stocking and handling. We also wanted to try and keep the same growth rate, with early maturity for the ewe lambs – we are mating ewe lambs.”

Purchasing his first 10 Cloven Hills rams in 2019, Rick is already seeing the benefits of the genetics in his production.

“We’re seeing very impressive scanning and marking – the best we’ve ever had,” he said.

“Before, we were getting close to 145% weaning; now the adults scan at 175% and mark at 153% - that includes dries and deaths.

“That’s where we need to be; this year is a testament to the robustness of the genetics - we’ve mated and marked more sheep than ever before in one of our worst starts to the season and with the least amount of shelter after the 2020 fires.

“The ewe lambs are also getting really good results, scanning at 120% this year and previously up to 147% for over 1000 twin born ewe lambs with marking between 100 and 120%; this is a massive boost to our business.”

He said the hardiness of the Cloven Hills ewes and lambs was vital to farms like his, where altering production to meet uncertainty of season and constantly changing conditions, would be cost-prohibitive.

“It’s a numbers game for us; we’re not worried about finishing too many lambs at all, although I know these lambs will quickly finish to export weights,” he said.

“We’ve got plenty of natural selection here ... we run the ewes pretty hard in the singles ... and use confinement feeding and deferred grazing to make sure there’s at least 1200kg FOO for the multiples come lambing in early July.

“But with the (Cloven Hills genetics) we’ve got a low-maintenance ewe - it’s an easy lambing and there’s little we have to do ... roll over any cast ewes, the muscle and fat is really important not only for the ewe but also for lamb survival.”

A firm subscriber to the use of ASBVs in ram selection, Rick said Cloven Hills’ performance recording and ASBVs dataset was key to his purchasing and improvement in his production.

“The breeding values are everything ... I don’t look at buying anything without that data, tick that off, then I look at the conformation,” he said.



OCTOBER RAM SALE

WITH the expansion of the Cloven Hills breeding program, this year's October ram sale will offer 500 rams – a jump from the 334 yarded in 2020 – to cater for an even greater range of budgets and needs.

We recognise that while many of our clients may seek a very long and specific list of traits and have the budgets to cater for those requirements, an equal number are either just starting out or might be expanding or changing their enterprises and therefore have tighter budgets.

Having started from scratch ourselves, we know the importance of working with the client to establish the necessary genetic and physical requirements for their breeding objectives, balanced with the things that aren't essential to those needs and cost them money.

The MCP+ average for this year's sale catalogue will sit around the top three per cent in the country – at least 5 points higher than last year's catalogue - so regardless of budget or production needs, we can say with confidence that every client will take home well-balanced rams with exceptional indexing for those key profit drivers.

In the offering will be sons of Australia's highest ranking rams, including about 60 by Cloven Hills 17-188.

All of our 2021 October sale rams on offer average ASBV PWT of 16 (top 5%) and AWT of under 14, highlighting our focus on 'curve bending' animals – lambs with strong, early growth that pull up at just the right stage of development.

Kate is available to take clients through ASBV data for rams on offer and assist with short-listing rams to suit every clients' production targets.

CURRENT SIRES

At the end of August, we are pleased to say that the consistent genetic gain we have made over the past 15 years has resulted in Cloven Hills holding the country's highest maternal ASBVs – we hold 18 of the top 20 rams in the Sheep Genetics Australian Maternal Sires index and the remaining two rams are sired by Cloven Hills rams.

Our current team of sires, the sons of which will appear in October's sale catalogue and in our summer ram lamb sales includes:



RANKED # 2: CLOVEN HILLS 2017-188

Cloven Hills 2017-188 has been the best performer in our stud and has had a huge influence in the national maternal flock, with 1894 progeny, including about 60 in this October 2021 catalogue. He has been used in at least 15 flocks, making him an outstanding linkage and leading sire.

He stood out from the pack, even as a ram lamb, with the early classing comments saying "Very nice, huge nuts!". If you haven't ever been convinced about the correlation between scrotal circumference and the fertility of daughters, this guy will convince you! We know he breeds moderate ewes that are highly fertile.

He has a NLW of 42.8% and a YNLW of 50% – the real 'wow!' factors in his ASBVs. His ewe lamb daughters join with ease. Nothing worries him – he has an amazing temperament and he'll walk up to most for an inspection – you would think he was a pet, but has been run under full commercial conditions.

All his progeny have good early growth (BWT 0.54, WWT 9.4, PWWT 15.2), and stop (AWT 9.7). He is built like a brick with great carcass (PFAT 0.53, PEMD 3.12). Structurally, he has stood up extremely well being joined to both mature ewes and ewe lambs every year. He has always had a 1 Dag Score and turned up for his last video shoot post-Spring as clean as a whistle. He's as close as we have come to finding it all in one ram (don't worry we are still looking!). At number 4 in the Maternal Database (MCP+ 197, MS\$ 206) he is holding his own against younger sires and is still in great demand.

SOME OF CLOVEN HILLS TOP 2020 SIRES (SEE PHOTOS BELOW)

ID	MCP+	MSI	BWT	WWT	PWWT	AWT	PFAT	PEMD	YGFW	PFEC	PSC	NLW	YNLW	MWWT	IMF	SHRF5	DRESS	LMY	BT	RT
17-188	197	206	0.5	9.4	15.2	9.7	0.6	3.1	9.3	-30.5	8.7	43%	50%	-1.0	-0.5	1.2	1.8	5.0	1	1
18-191	195	209	1.1	12.9	20.4	16.2	-1.1	2.3	39.8	-62.8	9.4	27%	30%	0.1	-0.8	1.8	2.1	6.7	2	1
19-123	193	205	1.0	14.1	21.0	17.7	-1.0	2.8	-3.4	-8.0	8.0	34%	35%	-1.1	-1.3	6.1	2.9	8.7	3	3
191280	193	196	0.8	11.4	18.1	10.9	0.4	3.1	7.5	-27.6	7.1	26%	34%	-0.9	-0.7	2.7	3.1	6.4	2	2
18-887	181	189	0.2	8.3	14.9	9.6	1.2	2.3	22.8	-27.6	6.3	28%	31%	-0.5	0.1	0.9	2.1	3.7	2	2

ADULT WEIGHT LOWER THAN PWT
SUITABLE FOR EWE LAMBS
Top 5%
Top 10%
Bold Top 20%

Note, rams ranked 1, 3 & 4 all Cloven Hills 2021 Sires. There are 33 sires in the October 2021 catalogue, they have 7568 progeny and 14 of these sires have been used across 20 different flocks across Australia. 20% of the catalogue is by the rams in the above table. Cloven Hills has 18 of the top 20 Australian rams, ranked by MCP+ Index.

Rams to be offered 144-190 MCP+ index. All rams in the top 25% averaging top 3% at 165 on MCP+ index. With our expanded breeding program and 170 more on offer in 2021, we expect they will offer clients excellent value.



Ranked #5 190123



Ranked #6 191280



Ranked #7 180191



2021 CLOVEN HILLS

RAM SALE

TUES 5 OCT

@ 10:30AM

ON-FARM AND LIVE
ON AUCTIONSPLUS

OPEN DAY ON-FARM 23/9 FROM 11AM-4PM

TOP RANKED PRIME LAMB GENETICS
TAILORED TO GROW YOUR BUSINESS



500 STUD & FLOCK
RAMS ON OFFER

Fertility | Growth | Carcase
Hardiness (OJD Vacc. Bruc. Accred)






CLOVEN HILLS ANNUAL EWE SALE - TUES 7 DECEMBER 2021

Buyers are always looking for Cloven Hills blood ewes. Clients have found this a successful way of marketing their breeding stock.

Contact us to enter ewes into this multi-vendor / multi-agent sale on AuctionsPlus.