

ASHEEP News



Autumn Field Day Review

May 2019

Newsletter # 53

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ASHEEPs Autumn field day was a great event that was attended by about 70 participants. The day was hosted by Gibson farmer Josh Sullivan and one of the days features was his recently renovated and much expanded shearing shed. The extensions were a modular system developed and installed by Commander Ag-Quip. Indeed the first presentation was a walk through the shed led by Hamish from Commander followed by a question and answer session about the fit out.

The next presentation was by Serina Hancock and Amy Lockwood, two researchers from Murdoch University. They covered a range of topics based on research they have recently completed, is currently underway or are planning to start soon. The general theme of their presentation was improved lamb survival and how management, mineral nutrition, technology and grazing crops among various other things can impact on lamb survival. As always there were a great deal of interest in this very important subject and generated a great deal of discussion leading into lunch.



Bruce Pengilly discussing lamb survival with Serina Hancock and Amy Lockwood from Murdoch University.



Part of the crowd checking out the extensions to Josh Sullivan's shearing shed.

After lunch there was a condition scoring exercise led by ASHEEPs new Executive Officer Ken Hart. He explained how Condition Scoring was a very simple management tool that enabled producers to monitor the nutritional status of their sheep through the production year. The benefits of doing that well would lead to improved conception and lamb survival rates. Better preparation of ewes for the following reproductive cycle and even a stronger wool clip from your ewes. Participants were also introduced to a couple of Condition Scoring apps that deliver the average Condition Score in real time as the producer works down the race. No need for any calculations ever again. The presentation was followed by an impromptu competition where Field day participant's condition scored a race of Josh's sheep. The winner was local producer Mattias Reck who got an average condition score of 3.41, exactly the same as Ken.

ASHEEP AGM Conference and Dinner

Thursday 20th June 2019

Esperance Bay Yacht Club

Autumn Field Day Review Cont.

Bronwen Fowler from Landmark gave a very comprehensive presentation on mineral nutrition and how it impacts on reproduction, health and performance of the flock. Bronwen discussed the wide range of products that are available and the benefits that each of those products will deliver for producers. Two local producers, Simon Fowler and Alan Hoggart then presented case studies on how they use mineral supplements and the benefits they have realised.

ASHEEP repeated the survey of supplementary feed quality of feed stocks available among its members. This was very generously sponsored by Esperance Rural Supplies and the analysis conducted by Dr John Milton at Independent Lab Services. The level of interest took everyone by surprise with the number of samples submitted up 150% on last year's survey. The results certainly reiterate the importance of getting a feed test done if you have a large investment in supplementary feed in storage. For example the Metabolisable Energy available in the cereal hay samples submitted varied by more than 60% between the highest and lowest values. The difference in the concentration of Crude Protein in the pasture hay samples was even greater with a range of 6% - 16%, a difference of over 250%. Producers often have a great deal of money invested in supplementary feed. Typically the cost of a feed test is a pittance of that value. Knowing the nutritional value of the feed you have available is valuable information when determining rations for the various classes of stock that producers have to manage.



ASHEEP members Alan Hoggart and Mark Walter showing that they not only produce great product, they prepare it as well.

The final presentation of the day was a very timely one by local producer, Scott Welke, who talked about strategies to clean up Autumn fodder pastures with an emphasis on Serradella. Scott's talk was brief and to the point but initiated a great deal of discussion which flowed over into the post presentation refreshments which were plentiful and very much appreciated by the many participants who stayed for the networking session.

Bronze Sponsor: Aus Stock

Aus Stock Transport is your first choice local carrier, based in Esperance.

We have sheep carting configurations from Semi, B-Train and Road Train.

Furthermore, we have bulk tippers available for fertilizer, lime, gypsum, sand, blue metal and grain cartage.

Aus Stock Transport is a member of the Livestock & Rural Transport Association of WA (Inc) and receives updates relative to our industry. We are also members of Transafe WA.

Aus Stock Transport is a corporate member of ASHEEP. We also proudly sponsor the Esperance show, various

sporting clubs and associations throughout the Esperance and Ravensthorpe districts.

Aus Stock Transport relies on experienced operators to use 'best practices' when loading, unloading and carting of animals.

For all your cartage requirements call Peter Holdman on 0419 948 475 or email aus-stock@outlook.com



Preparedness Against Diseases Outbreaks

Remember the recent jump in wool prices?

WA wool producers were rejoicing but a few realised the possible significance of that increase. The price jump accompanied the foot and mouth disease (FMD) outbreak in South Africa and the subsequent ban from China of all South African greasy wool imports. Their loss is our gain some may say, but if we fully understand the nature of FMD then there should be great interest in being prepared and armed against exotic diseases like FMD. The threat to Australia is real, as demonstrated by the finding of genetic fragments of FMD virus in pork products confiscated from international travellers at some Australian airports late last year and earlier this year.

When we think of preparedness against diseases outbreaks, there was no other more willing to go into battle for our livestock industries than Peter Gale. At a recent meeting for the FMD Ready sheep pilot group* of which he was a very active and passionate member, he created a very simple slogan, in order to remind people of the importance of checking their animals and reporting unusual signs of disease.

L - Look

I - Investigate

V - Verify

E - Evaluate

But what does this actually mean?

LOOK – check out your animals often for anything unusual. For example, FMD signs can differ in each species

Sheep – lameness, blisters on the feet and in the mouth, signs can be mild and difficult to see on woolly feet

Cattle – fever, poor appetite, decrease in milk production, lameness, blisters in the mouth with increased drooling and lip smacking, blisters between the toes and around the band of the hoof, blisters on the teats and udder, abortion.

Pigs – lameness, blisters on the feet, death of piglets

INVESTIGATE – report these unusual signs of disease and have it investigated

Use your experience and knowledge of your animals to determine if what you are observing is unusual.

Call your local vet, district vet or the disease hotline 1800 675 888 as soon as you see anything unusual.

Don't hope it will go away. Don't be the one who did nothing. Have a plan in place now.

VERIFY – Get a diagnosis

Speak with your local or district vet about the subsidies available to help investigate and diagnose unusual signs of disease in your animals. Do it today, so you are ready if you need it. Combine your experience and knowledge with the vets and laboratory experts to get a diagnosis and work out a plan for control and prevention.

EVALUATE – What have you learnt from this experience to help you pick up unusual signs sooner next time? What other ways are there to prevent diseases infecting your sheep? Talk with others about your positive experiences of reporting and getting a diagnosis.

FMD preparedness is about checking your stock regularly for signs of the disease and getting help when you see anything unusual. If FMD does come in through our borders, the sooner it is diagnosed the sooner it can be eradicated.

Vale Peter Gale



* The Project is supported by Meat & Livestock Australia, through funding from the Australian Government Department of Agriculture and Water Resources as part of its Rural Research & Development for Profit program, and by producer levies from Australian FMD-susceptible livestock (cattle, sheep, goats and pigs) industries and Charles Sturt University (CSU), leveraging significant in-kind support from the research partners.

The research partners for this project are CSIRO, CSU through the Graham Centre for Agricultural Innovation, the Bureau of Meteorology and the Australian Department of Agriculture and Water Resources, supported by Animal Health Australia.

Vet Spot: Bull Preparation

The bull's are back in town!

With calving wrapping up for most Esperance producers, it is time to get ready for the next pasture party!

Bull's are big sooks. They are completely preoccupied with a single topic, and with the added distractions of fighting and digging holes, they often forget to look after their health and welfare. This is where you come in!

Most seed stock producers set your bulls up to succeed in advance, as their livelihood is intimately linked to yours. They set their bulls on the right path, now it is up to you to continue to look after them and ensure they achieve optimal conception rates for your herd.

We have played an interesting role in presale bull preparation across Australia. In 2006 we pioneered ear notch testing to diagnose animals Persistently Infected (PI) with BVD, setting up the first laboratory of its kind in the Southern hemisphere. At roughly the same time, we also identified and pioneered the use of vaccines to manage Bovine Herpesvirus as an infections cause of preputial breakdown in virgin bulls. As a result, we have consulted to hundreds of Australian seed stock producers and have developed a strong set of recommendations to optimize the success of the bulls they sell. It then remains your responsibility to look after them after purchase.

Your bulls should arrive pre-vaccinated to a number of reproductive diseases. These are our presale vaccine recommendations:

Two doses of Pestigard (Bovine Viral Diarrhea)

Two doses of 7-in-1 (Clostridials and Leptospirosis)

Two doses of Vibrovax (Campylobacter)

Either a single dose of Rhinogard (Bovine Herpesvirus)

-or-

Two doses of Bovilis MH + IBR (Bovine Herpesvirus + Mannheimia Hemolytica)

PI screened (Remove any animals Persistently Infected with BVD)

Dewormed (Preferably with an injectable product)

Semen Tested

Physically Examined

Pestigard BVD is a potently immune suppressive dis-

ease with serious reproductive consequences. By ensuring that none of the bulls are carriers (PI) and by vaccinating them presale, we both ensure that we are not introducing BVD to a property and that we are providing protection to the bull should he be introduced to the disease at arrival.

7-in-1 Vaccinating against clostridial diseases will protect your bull from a range of digestive and physical insults potentially leading to enterotoxemia, pulpy kidney, tetanus, or blackleg.

Whilst bulls won't abort due to leptospirosis, they can become unwell. Leptospirosis is also transmittable and potentially life threatening to humans.

Vibrovax Vibrio, or campylobacteriosis, is a true STD maintained in herds by carrier bulls. Carrier bulls maintain the infection in the deep crypts of their prepuce. If a carrier bull mates a cow, he may transmit the bacteria to her, potentially resulting in early embryonic death. The cow will then usually clear the infection and become immune, often falling pregnant in the next cycle. Vibrio is well controlled though maintaining vaccination of all working bulls and by culling older bulls when appropriate.

MH + IBR or Rhinogard Bovine Herpesvirus causes Infectious Bovine Rhinotracheitis (IBR) as well as Infectious Balano Posthitis and Pustular Vulvo-vaginitis (IBPPV). Wow what a mouthful! Vaccinating virgin bulls prior to sale appears to reduce the incidence and severity of the crippling syndrome of preputial breakdown seen in young bulls in their first season across the district. We only advocate vaccinating bulls prior to their first season, as all bulls appear to be immune to herpesvirus thereafter.



Bull Prepuce Damaged by Bovine Herpesvirus

Vet Spot: Bull Preparation Cont.

What vaccines and treatments do we recommend you maintain going forward?

Prior to your new bulls first season:

Deworm

Micromineral Top Up

Potentially a follow up dose of MH + IBR

Annually

Pestigard

7-in-1

Vibrovax

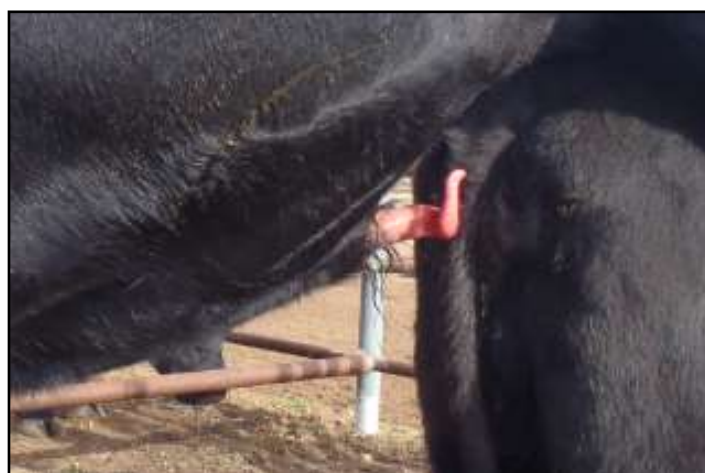
Deworm

Micromineral Top Up

We recommend that all studs semen test their bulls pre-sale and have the semen analyzed crush side for progressive motility and a preserved sample sent away to a skilled morphologist for morphological analysis. In essence, semen testing is a two stage process. If you think of individual semen as small taxis carrying genetic material, motility defines their ability to reach the egg (airport), whilst morphology tells us if there is anybody in the taxi. Because only one taxi is allowed in the airport (first in best dressed), it is critical that enough of the semen is moving (motility) (minimum of 30%) to get us to the egg (they work together), and equally critical that the single taxi that ultimately makes it in to the airport has usable genetic material.

If the process of creating the sperm cell in the bull's testes hasn't adequately prepared the "winning taxi" to achieve fertilization conception will not occur.

Some producers ask us to semen test their entire bull battery annually. Others organize us to serviceability test their bulls. Optimally, both could be done. Pragmatically, we recommend that all new bulls are properly semen tested (usually at the stud) and older bulls are either observed during mating or service tested annually. Service testing allows us to find bulls that are arthritic or unable to achieve intromission due to penile injury or corkscrewing. Regardless of the strategy you choose, please document which bulls you used over each mob and any bull movements that may have occurred during mating. At pregnancy testing we may be able to help you to identify potential problem bulls for us to examine.



Corkscrewing Bull



Make sure your bull has the right taxi!

Your bulls have to do their physical best for you to do your financial best! Keep an eye on them during mating!

As an added tip, bulls always corkscrew to the right... so make sure you watch them from the right side, just don't stand too close!

Enoch Bergman
Swans Veterinary Services
Phone: (08) 90 715 777

Agro Spot: Be prepared

Thoughts about our pastures as we move into winter.

RLEM: Watch out once temperatures crash. Le Mat is definitely the pick of the insecticides and has been updated with new label for use in pastures. Will also control aphids.

Short on feed as we are going into the winter? Gibberilic Acid is a very useful product along with a shot of Nitrogen to stimulate any grassy pastures. I call this scenario 1 + 1 =3! Gibberilic acid (ProGibb by Sumitomo) is a naturally occurring plant hormone that acts as a plant growth regulator. It does this by extending the leaf and stem of typically grass crops. It has a nil grazing and withholding period. The brand ProGibb has organic certification!

In 2010 I did a number of trials with ProGibb. The following is a summary of just two of them. Best results are achieved during our coldest months and when pasture growth rates are slow.

Co-operator	Nil	ProGibb 20 g/ha	Flexi-N 52 L/ha	ProGibb20 g/ha+FN52 Lt/ha
Capeview, Neridup				
Ryegrass, clover, c/weed	1120	1320 (\$0.04)	1520 (\$0.08)	1680 (\$0.08)
Mark Scott, Coombalbidgup				
Barley, ryegrass, serradella	760	1200 (\$0.03)	1200 (\$0.07)	1480 (\$0.06)

Numbers in bold are kg/ha/dry matter produced. Red brackets are cost per kg of dry matter for that additional kg of dry matter produced.

Mark Scott's

Untreated 760 kg/ha DM

ProGibb + Flexi-N 1480 kg/ha DM



Winter cleaning broadleaf weeds out of legume pastures: In sub clovers there are a number of options around, but, generally the spray graze technique of MCPA Amine or 2,4-D Amine followed 7 days later with heavy grazing will do an excellent job on capeweed, radish, double gee and geranium. The secret here is the heavy grazing and sheep will do a better job than cattle. A number of other specific herbicides are around including Jaguar (bromoxynil + diflufenican), Tigrex (MCPA LVE + diflufenican) and Ecopar. Anything with diflufenican is also excellent on the water weed crassula.

Broadleaf control in serradella's is a little more costly, but, I have had very good results with mixtures of bromoxynil + Broadstrike and the use of Raptor (imazamox), particularly when silvergrass is also present. Both Raptor and Broadstrike are registered on medics. Spinnaker (imazethapyr) has become a very useful herbicide as a pre sowing or post sowing pre emergent to serradella sowings for the control of a number of broadleaf weeds, but, particularly targeting capeweed. Any PSPE applications need to be applied prior to rain.

Always be aware of the grazing withholding periods, and be mindful of re-cropping plantbacks, particularly if herbicide applications are late in the season.

Grass control: The commonly used grass selectives for broadleaf crops are the standard practice. There are

subtle differences within the FOPS and between the FOPS and DIMS.

Top dressed with Super : Hopefully this has been done! Phosphorus promotes early root formation and growth. Phosphorus helps improve cold tolerance. Many trials over time have promoted the positive results achieved by applying fresh P. Products like CSBP's Super Phos have good licks of Sulphur and Calcium. Sulphur is essential for nitrogen fixation by legumes and is necessary for chlorophyll formation. Over the years with more intense cropping and the use of high analysis fertilisers used, at lower rates, Sulphur may need to be reconsidered as an important macro element in the pasture system. Where Potash is required, serradella's respond well.

Theo Oorschot,
Esperance Rural Supplies,
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Platinum Sponsor: Elanco

Pre-lambing worm control in the WA winter rainfall region

Effective worm control pre-lambing is a critical component of farm management. Low worm burdens can quickly escalate as the ewe's natural immunity drops coinciding with lambing. Pasture contamination can rapidly increase and both ewes and lambs can be dramatically compromised in terms of lactation, growth rates and clinical disease.

Reaching for the drench gun at lamb marking is often too late to reduce the impact on production and profitability.

Monitoring and preparation before lambing is the key.

Preparing low worm-risk paddocks for lambing is crucial in helping to avoid high worm pressure. Spelling selected paddocks from sheep for 3–4 months before lambing will help minimise contamination of pasture with worm larvae¹. As stocking pressure doesn't always allow for spelling, grazing with cattle is an alternative option or even grazing with adult sheep – but only when those sheep will not contribute to pasture contamination i.e. sheep that have a tested low worm egg count (WEC).

Natural immunity to worms temporarily decreases in ewes at and in the weeks after lambing. If worm burdens are not controlled, significant pasture contamination can occur.

As mobs are typically set stocked at this time, ongoing reinfection occurs and worm burdens can build up dramatically, particularly if feed is limiting and stocking pressure is high. Subsequent infection of lambs is also unavoidable as they are highly susceptible to infection with internal parasites due to their low natural immunity at this age.

Managing the worm burden of ewes prior to lambing is therefore crucial.

Managing body condition score of ewes is also critical to optimise lamb survival² and minimise risk of ewe mortality³ – where nutrition and body condition remain important factors in minimising the impact of existing parasite burdens. In early lambing ewes, the strategic autumn drench (March–April) generally removes the need for a specific pre-lambing drench¹ – assuming a known fully effective drench was used.

In late-lambing ewes (i.e. later than mid-June), a routine WEC is recommended 3 weeks before lambing is due to start. Treat with an effective drench if worm egg count exceeds 200epg. A routine pre-lambing drench should be given if a WEC is not conducted¹. Take care when yarding stock close to lambing to avoid problems with hypocalcaemia or pregnancy toxemia.

If a pre-lambing drench is required, a short-acting drench known to be effective on your property is recommended – ideally a drench (or combination of drenches) that will reduce WEC by at least 98%. Zolvix™ (monepantel) or Zolvix Plus (monepantel plus abamectin) may be suitable choices. Monepantel is from a completely novel drench class (the only 'orange' drench)⁴ and has been shown to be able to

provide very high efficacy against Brown stomach worm, Black scour worm and Barber's pole worm⁵ – the most significant and economically important worm species. Monepantel has also been shown to be effective against worms that are resistant to other drenches – even worms that are resistant to three or four other drench actives.⁶ It may therefore be an appropriate choice when the resistance status of other drench classes is unknown or if resistance to other actives is already severe.

	Zolvix	Zolvix Plus
Active constituent	Monepantel	Monepantel, Abamectin
Dose rate	1 mL/10kg	1 mL/10kg
Meat WHP	14 days	14 days
ESI	115 days	84 days
Retreatment Interval	21 days	42 days
Pack size	10 L, 5 L	10 L, 5 L, 2.5 L & 1 L
Restraints	DO NOT USE in sheep less than 10 kg body weight	DO NOT USE in lambs under 6 weeks of age or less than 10 kg body weight
	DO NOT USE in ewes which are producing or may in the future produce milk that may be used or processed for human consumption	

Always read and follow label directions before use.

Resistance may develop to any chemical. Ask your local veterinary practitioner or animal health advisor for recommended parasite management practices for your area to reduce development of resistance. It is advisable that a resistance test be conducted before any parasite treatment is used.

References: 1. <http://www.wormboss.com.au/programs/sheep/wa.php>
 2. <http://www.lifetimewool.com.au/Ewe%20Management/lambsurv.aspx>
 3. <http://www.lifetimewool.com.au/Ewe%20Management/ewemortal.aspx> <http://wormboss.com.au/tests-tools/management/drench-decisions-guide.php>
 4. Monepantel is a member of the Amino-Acetonitrile Derivative (AAD) class of anthelmintics.
 5. Hosking, B. et al. (2010) A pooled analysis of the efficacy of monepantel, an amino-acetonitrile derivative against gastrointestinal nematodes of sheep. *Parasitol Res* 106:529–532.
 6. Baker, K.E. et al. (2012) Efficacy of monepantel and anthelmintic combinations against multiple-resistant *Haemonchus contortus* in sheep, including characterisation of the nematode isolate. *Vet Para* 186(3–4):513–517.
 Zolvix contains 25 g/L monepantel. Zolvix Plus contains 25 g/L monepantel and 2 g/L abamectin. Elanco and Zolvix™ are trademarks of Elanco or its affiliates. ©2019 Elanco or its affiliates.

Dr Nicholas Rolls,
 Technical Services
 Veterinarian,
 Elanco Australasia



Platinum Sponsor: Landmark

Pregnancy Toxaemia and Hypocalcaemia

With lambing upon us, possible metabolic disorders may be arising - Pregnancy Toxaemia and Hypocalcaemia. The season has seen growers be more diligent with providing calcium supplementation through blocks and licks early, this will hopefully see less cases of Hypocalcaemia presenting this year. Pregnancy Toxaemia is a little more difficult to control and is related to inadequate nutrition, a stress event or a change in diet, which makes animals go off their feed and results in low glucose in the blood.

Changes in weather and feed can have a rather large impact on your heavily pregnant ewes and may put them at risk of contracting Pregnancy Toxaemia (twin Lamb Disease) or Hypocalcaemia (Milk Fever). Both have very similar symptoms but their causes and outcomes are rather different. For both of these conditions (along with many others) it is always best to Prevent! By doing this, you are ensuring your ewes continue to receive their daily nutritional requirements.

Pregnancy Toxaemia is caused when a pregnant ewe does not receive its full nutritional requirements. Dry feed is minimal and the pregnant ewe's nutritional needs are increasing which make them susceptible to this. Careful management and consistent nutrition is key in avoiding Pregnancy Toxaemia. Feed On Offer of 1500kg's per hectare is the amount of feed that pregnant ewes require during lambing, when this is unavailable, a quality supplementary source of energy, such as grain or hay, is required. To avoid Pregnancy Toxaemia, it is recommended to feed high energy, protein and calcium supplements as well as grains containing high starch i.e. oats, barley & triticale along with quality hay for roughage. However, avoid making sudden changes to their diet, it is best to slowly incorporate new feeds into their already established diet.

Hypocalcaemia is the most common calcium disorder in ewes and is frequently seen at lambing time. It is caused by an electrolyte imbalance and is indicated by a low level of calcium. It is vital to ensure they don't fall deficient. During pregnancy, and the first few weeks of life, the lamb is entirely dependent on the ewe to provide calcium to build strong bones. Inadequate calcium supply by a ewe to her lamb means the lamb has lower bone calcium stores, and as an adult will be more at risk of hypocalcemia when lambing, perpetuating the risk into the next generation. Ensure ewes have access to a quality supplement such as lick blocks or loose lick with a high calcium percentage. The peak demand for calcium by the lamb is at 10 days of age, but that demand on the ewe steadily increases from midway through pregnancy, as the lamb's bones begin to calcify.

Agricon's Newe-Tra-Lamb block is a fantastic supplement for pre-lamb, lactating ewes and lambs. This is the only block on the market that contains corn which is really high in energy and starch, it also contains SarStart; SarStart improves the animals performance and efficiency through modifying rumen fermentation allowing beneficial bacteria to proliferate. Ewes carrying twins cannot physically eat enough to get the energy they require. The grain in Newe-Tra-Lamb is a great way to supplement them with a high energy, low consumption product. With the lack of green feed in the paddocks at the moment, it is recommended that you feed both the Newe-Tra-Lamb and Calcifort +10 at the same time. The Urea in the Calcifort block helps the ewe digest dry matter (hay) more efficiently and prevents them being blocked up. This in turn will allow them to graze / eat more. Having the Calcifort as well will help ensure that you are meeting their nutritional requirements by keeping the ewe's calcium level in the safe zone and providing them with that much-needed Urea until we see green grass.



Although the ewes still need the Calcium and Protein as they come up to lambing we need to remember to reduce the supplemented amount of urea in the final trimester, once we have sufficient green feed, you will be able to ease off on the Calcifort and just go with the Newe-Tra-Lamb. Both blocks are also safe to feed when rain is upon us. They hold their shape when hit by rain, not getting that dishy type hollow on top that some other blocks get. The amount of Urea in these blocks is not enough to cause toxicity!

Platinum Sponsor: Landmark Cont.

Treatment:

The main aim of treatment is to get the ewes appetite back. If ewes are treated early with 24 hours of pregnancy toxaemia sign being detected, there is a better prognosis. Ewes require a quick shot of glucose, glycol or glycerol- Vytrate liquid (early treatment) & / or Ketol or Ceton (later treatment)- most cases noticed will be in later stages (once the ewe has already gone down), so it is best to have Ketol or Ceton on hand. The response to treatments decreases as the animal goes down.

As Pregnancy Toxaemia and Hypocalcaemia can present at the same time and it is difficult to determine which is the cause, it is recommended that animals be treated with an oral glucose drench (Ketol or Ceton) for the preg tox and slow release injection of calcium, magnesium and glucose (Flopak 4 in 1) under the skin for hypocalcaemia at the same time. Ewes should be isolated and treated twice a day for two days, if no response the ewes should be euthanized.

It is important to note that ewes with hypocalcaemia once treated with a flopak injection will respond within 20 minutes, if they have preg tox they will not respond.

In Summary:

Ensure you are meeting the correct feed requirements

Provide a lick block or loose lick to boost feed efficiency

Where possible, separate your single & twin baring ewes to ensure twinning ewes are getting more (twin baring ewes have difference feed requirements to single baring ewes)

Design a feeding plan for your ewe's specific requirements

Feed high energy grains and supplement with good minerals and calcium.

Have treatments on hand for ewes that have gone down i.e. Vytrate, Flopak's, Keytol or Ceton

Please feel free to contact me if you require any further information in regards to the above. I am also more than happy to help recommend some alternative options and / or help to create a feeding plan.

For further information please contact Stuart Richardson of Landmark Esperance

Mob: 0448 218 663

Email: stuart.richardson@landmark.com.au



Gold Sponsor: V & V Walsh

We would like to send our deepest condolences to the entire ASHEEP group and the broader Esperance community and anybody who has had the pleasure of dealing with the late Mr Peter "Windy" Gale.

We would also like to extend our condolences to Emma and the extended Gale family, Neil and Maureen Brindley and the greater Landmark network for their tragic loss.

Peter "Windy" Gale was pillar of the agricultural community and highly respected client and friend of V&V Walsh.

Rest in Peace Windy



Fixed Time AI Into Commercial Heifer

ASHEEP Hijacks Heifers

ASHEEP, in conjunction with Swans Veterinary Services, successfully applied for funding from Meat and Livestock Australia to run a Producer Demonstration Site (PDS) focusing on the value of integrating Fixed Time AI (FTAI) into commercial heifer mating programs.

The trial design was fairly straightforward. Enrolled producers would randomly assign their heifers to one of two groups, usually based on the last digit of their management tag. All of the heifers would be weighed pre-mating. Half of the heifers would be organized into a synchronization program, culminating in an insemination date on the producer's preferred mating start date. The remainder of the heifers would be introduced to the bulls on the same day. The FTAI integrated heifers would be AI'd to three different Angus bulls all chosen due to their Expected Breeding Values (EBV's) focusing on Calving Ease, Low Birth Weight, High 200 Day Weight, and High 400 Day Weight. Ten days later, the AI'd heifers would join their naturally mated siblings for approximately another six weeks of natural joining. The heifers would go on to be preg tested, to calve, to be rejoined, and to be preg tested again after their second natural mating. The enrolled producers would keep track of individual records for each cow relating to their mating weight, 1st year conception rate, dystocia rate, live calf rate, death rate (from dystocia), and rebreeding rate. Some producers were also able to capture weaning weight data from the calves from the two groups.

MLA provided \$25 towards defraying the cost of AI for the heifers enrolled in the FTAI integrated group. Vetoquinol, a pharmaceutical company that specializes in bovine reproduction provided a \$5 subsidy towards the cost of their products, ABS, a semen wholesaler, provided a \$5 and \$2 discount on two bulls respectively, and Performance Genetics, another semen wholesaler, provided a \$10 discount on the third bull used in the PDS.

In the first season, 2017, there were 7 enrolled Esperance producers. None of them, and a prerequisite for the trial, had wished to AI their heifers prior to the trial. In essence, they agreed to allow us to Hijack their Heifers in the name of Science! The heifers were weighed and randomly assigned to their groups. Approximately half of the heifers were AI'd and simultaneously the remainder of the heifers were put out with the bulls as originally planned. Ten days later, the heifers were reunited and were run together for the remainder of the trial.

Farm	FTAI Integrated			Syndicate Mated			% Reduction in Empties
	Joined	Empty	% Empty	Joined	Empty	% Empty	
A	173	28	16.2%	218	41	18.8%	13.8%
B	19	0	0.0%	19	1	5.2%	100.0%
C	25	6	24%	25	5	20.0%	-20.0%
D	25	3	12%	24	3	12.5%	4.0%
E	71	16	22.5%	73	18	24.7%	8.9%
F	58	5	8.6%	51	6	11.8%	27.1%
G	102	11	10.8%	102	8	7.8%	-38.5%
Total	473	69	14.6%	512	82	16.0%	8.8%

Table 1: The number of heifers joined per farm and the conception rate statistics per farm between FTAI integrated and syndicate mated heifers

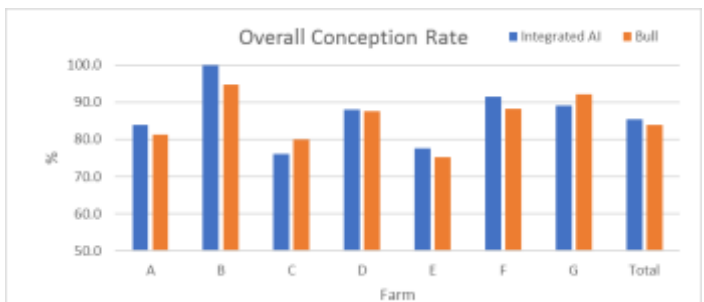


Figure 1a: Conception rate per farm between FTAI integrated and syndicate mated heifers

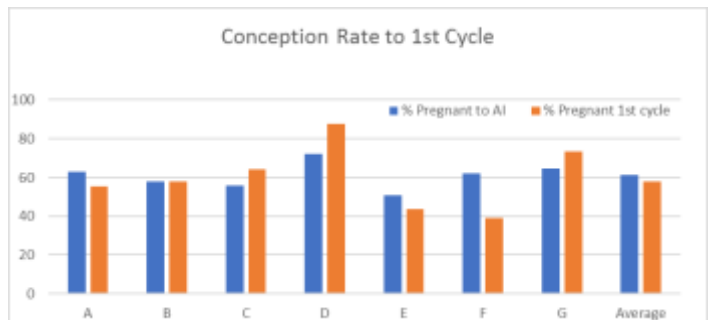


Figure 1b: Proportion pregnant to AI within FTAI integrated heifers compared to the proportion pregnant to the 1st oestrus cycle within syndicate mated heifers

Dystocia Rate The incidence of dystocia was reduced by 29.2% over the entire data set within the FTAI integrated group at 6.3% vs 8.9% within the syndicate mated heifers approaching statistical significance (P = 0.17). Farms C, D and E showed large differences in the level of dystocia within the syndicate mated groups, suffering greater than 20% observed dystocia rates. Conversely, farms A, F, and G showed higher levels of dystocia within the FTAI integrated groups than the syndicate mated groups. The results are summarized in Table 2 and graphically in Figure 2.

Fixed Time AI Into Commercial Heifer Cont.

Farm	FTAI Integrated			Syndicate Mated			Dystocia Reduction %
	Observed Calvings	Dystocia	% Dystocia	Observed Calvings	Dystocia	% Dystocia	
A	128	13	10.2%	147	10	6.8%	-49.3%
B	19	0	0%	18	0	0%	0%
C	19	0	0%	20	4	20.0%	100.0%
D	22	1	4.6%	22	7	31.8%	85.7%
E	29	2	6.9%	21	6	28.6%	75.9%
F	42	1	2.4%	31	0	0%	-100.0%
G	89	5	5.6%	88	4	4.6%	-23.6%
Total	348	22	6.3%	347	31	8.9%	29.2%

Table 2: Dystocia statistics per property between FTIA integrated and syndicate mated heifers

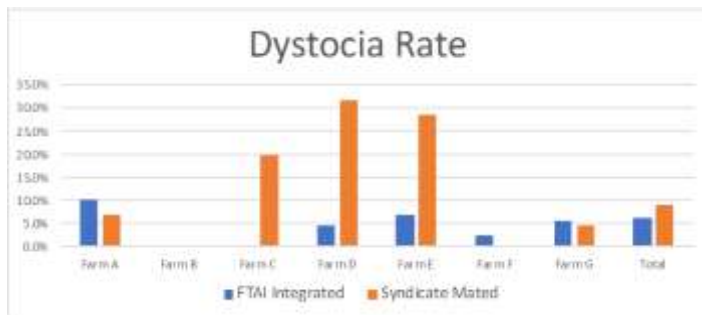


Figure 2: Dystocia rate per property between FTIA integrated and syndicate mated heifers

Calf mortality was greater ($P = 0.005$) in the syndicate mated group compared to the FTAI integrated group. Calf mortality was reduced by 32% overall when comparing the FTAI integrated groups to the syndicate mated groups. The greatest differences were shown on farms C, D and E, where the calf mortality rate in the syndicate group was 10% or greater. The results are summarized in Table 3 and graphically in Figure 3.

Farm	FTAI Integrated			Syndicate Mated			Mortality Reduction %
	Observed Calvings	Calf Mortality	% Calf Mortality	Observed Calvings	Calf Mortality	% Calf Mortality	
A	128	8	6.3%	147	10	6.8%	8.1%
B	19	0	0%	18	0	0%	0%
C	19	0	0%	20	2	10.0%	100.0%
D	22	1	4.6%	22	3	13.6%	66.7%
E	29	0	0%	21	3	14.3%	100.0%
F	42	0	0%	31	0	0%	0%
G	89	4	6.7%	88	6	4.6%	-48.3%
Total	348	15	4.3%	347	22	6.3%	32.0%

Table 3: Calf mortality statistics per property between FTAI integrated and syndicate mated heifers



Figure 3: Calf mortality rate per property between FTIA integrated and syndicate mated heifers

Heifer Mortality While levels of heifer mortality were low the proportion within the syndicate mated group was greater ($P = 0.05$) compared to the Integrated AI group. The greatest difference occurred on farm D where the mortality rate in the syndicate mated group was 9.1% compared to nil in the Integrated AI group. The results are summarized in Table 4 and graphically in Figure 4.

Farm	Integrated FTAI			Syndicate Mated			Mortality Reduction %
	Observed Calvings	Heifer Mortality	% Heifer Mortality	Observed Calvings	Heifer Mortality	% Heifer Mortality	
A	128	2	1.6%	147	2	1.4%	-14.8%
B	19	0	0%	18	0	0%	0%
C	19	0	0%	20	0	0%	0%
D	22	0	0%	22	2	9.1%	100%
E	29	0	0%	21	0	0%	0%
F	42	0	0%	31	0	0%	0%
G	89	0	0%	88	1	1.1%	100%
Total	348	2	0.6%	347	5	1.4%	60.1%

Table 4: Heifer mortality statistics per property between FTAI integrated and syndicate mated heifers



Figure 4: Heifer mortality rate per property between FTIA integrated and syndicate mated heifers

Fixed Time AI Into Commercial Heifer Cont.

Rebreeding Rate Heifer rebreeding rate represents one of the most significant profit drivers intended to be illustrated by this PDS. Heifers which fail to conceive in their first mating are valuable animals with excellent alternative value channels as they can be redirected to lot feeders or be finished on grass. However, empty 1st calvers are often valued at cow prices once diagnosed as empty. In essence, the key reproductive profit driver in a commercial beef enterprise is in optimizing conception rates within the 1st calvers, ie. their second mating opportunity. Young cows that calve early for the second time will go on to produce more and heavier calves for the remainder of their lifetime.

In the trial, the combined pregnancy rate of the 1st calvers which had been enrolled as heifers in the trial was significantly improved in animals which had been enrolled in the FTAI Integrated group as heifers compared to those which had been syndicate mated. Data remains to be collected from properties B and C. Conversely, property F had a superior pregnancy rate within the 1st calvers that were syndicate mated as heifers. Overall the proportion of empty 1st calvers was reduced by 32.6% in the FTAI integrated heifers. Interestingly, most producers enjoyed a better than expected pregnancy rate overall in the study animals within both groups due to the program requiring a shorter than normal heifer mating season for many producers. The results are summarized in Table 5 and Figure 5.

Farm	FTAI Integrated			Syndicate Mated			% Reduction in Empties
	Joined	Empty	% Empty	Joined	Empty	% Empty	
A	126	6	4.8%	145	9	6.2%	23.3%
D	22	0	0.0%	22	1	4.5%	100.0%
E	55	3	5.5%	55	11	20.0%	72.7%
F	34	6	17.6%	37	5	13.5%	-30.6%
G	86	6	7.0%	83	7	8.4%	17.3%
Total	323	21	6.5%	342	33	9.6%	32.6%

Table 5: The number of 1st calvers joined per farm and the conception rate statistics per farm between those in the FTAI integrated or syndicate mated group as heifers



Figure 5: Conception rates at second breeding opportunity as 1st calvers as a function of management strategy as heifers

Setting Heifers up to Succeed So far, the trial has specifically demonstrated the goals it was intended to illustrate:

Within a seven week joining, integration of Fixed Time AI improved conception rates, reduced dystocia, reduced calf losses, reduced heifer losses, and improved subsequent conception rates.

Beyond the inherent value of improving heifer outcomes associated with improving pregnancy rates and reducing dystocia statistics, synchronization provided other tangible benefits to the participants.

Calving Distribution A calving histogram was produced for each property from pregnancy testing data. More accurately, calving histograms generated from data collected at calving were produced from four of the seven properties with sufficient information and of appropriate quality. The results and graphs were calculated for individual properties but are expressed here cumulatively (Figure 6a). The calving histogram clearly shows that a greater number of calves in the FTAI integrated group were born earlier than calves born from the syndicate mated group, due to the cumulative benefits of synchronization and the use of AI sires with exceptionally short gestational lengths. The calves conceived due to AI are clearly distributed in a bell curve around a calving date of minus six days, followed by a second bell curve distribution at 21 days and less obviously at 42 days after the expected due date. Overall the calves from the AI integrated heifers were born on average 9.2 days earlier than the calves born from the syndicate mated heifers, giving them a weaning weight advantage and providing their dams additional time to recover prior to their subsequent mating. The naturally mated calves have a normal distribution as would be expected from natural mating.

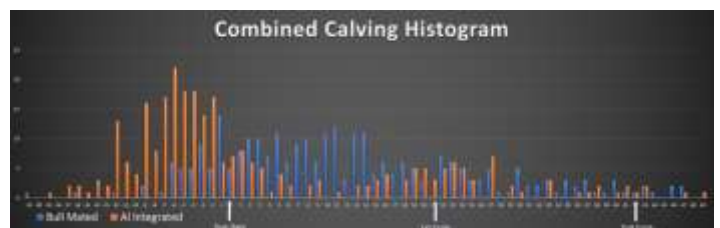


Figure 6a: Calving histogram showing the distribution of calves born from the FTAI integrated heifers (orange) vs the syndicate mated heifers (blue)

Figure 6b depicts a survival curve, beginning when the earliest calf was born relative to the official due date (assuming a 283 day gestation) and concluding on the day the last calf was born. Over 60% of the calves were born prior to the projected calving start date within the FTAI integrated heifers vs. only 20% in the bull mated heifers, conferring significant advantages to both the calf and dam.

Fixed Time AI Into Commercial Heifer Cont.



Figure 6b: Survival curve depicting the distribution of calves born in relation to the expected calving due date between the FTAI integrated heifers (orange) and the syndicate mated heifers (blue)

Access to Proven Superior Genetics Sire data was collected from three properties (Farms E, F, and G) their results are summarized below and compared to the AI Sires. The AI Sires were chosen for both superior calving ease and growth characteristics and their EBV's possessed significantly better accuracy. Interestingly, Farm E suffered significant dystocia and calf mortality amongst the syndicate mated heifers compared to the FTAI integrated heifers, whilst the syndicate mated heifers from Farm F suffered very little dystocia, calf, or heifer mortality with very similar bull EBV's.

Angus Sires	CE Dir	CE Dtrs	GL	BWT	200	400	600	MCW
Farm E								
K536	2.0	1.9	-4.9	3.3	44	72	94	76
K921	3.3	2.5	-5.8	2.3	48	83	109	101
L205	1.1	0.0	-3.4	4.3	54	91	123	101
L447	3.6	1.1	-4.8	2.3	44	80	107	88
Farm E Average	2.5	1.4	-4.7	3.1	48	82	108	92
Average Ranking %	80%	66%	63%	76%	63%	50%	55%	52%
Average Accuracy %	54%	47%	85%	71%	69%	71%	69%	67%
Farm F								
L310	2.3	-0.1	-2	2.7	41	77	97	75
L392	2.4	0.2	-4.7	2.7	45	83	106	87
L398	1.6	-1.3	-4.2	3.4	47	85	110	88
L443	2	-0.2	-2.9	3.6	47	86	117	98
Farm F Average	2.1	-0.4	-3.5	3.1	45	83	108	87
Average Ranking %	77%	34%	41%	77%	51%	55%	53%	43%
Average Accuracy %	53%	46%	82%	72%	70%	70%	71%	67%
Farm G								
L76	1.0	-1.0	-6.8	1.8	41	79	100	82
L45	2.9	3.4	-6.8	2.5	44	81	108	94
L44	1.4	2.3	-4.0	4.0	43	77	102	88
L43	3.3	1.3	-6.2	2.9	45	88	117	103
L35	3.3	1.2	-8.9	3.5	46	81	112	96
L20	3.0	3.7	-6.9	3.8	42	75	100	90
L9	0.6	-1.2	-5.1	3.3	44	86	112	98
K29	1.5	3.3	-5.8	2.1	52	89	116	83
K27	2.1	0.3	-6.4	3.5	45	78	114	86
Farm G Average	2.1	1.5	-6.3	3.0	45	82	109	91
Average Ranking %	74%	61%	82%	77%	48%	49%	55%	50%
Average Accuracy %	53%	46%	82%	72%	70%	70%	71%	67%
AI Sires 2017								
HIOG18 Ayrvale General	5.1	4.0	-8.4	2.0	53	95	126	98
TFAL24 Leonardo Landfall	6.4	5.1	-9.5	-1.8	41	92	101	48
USA16764044 Broken Bow	3.2	4.6	-5.9	0.9	55	90	117	99
2017 AI Sire Average	4.9	4.6	-7.9	0.4	50	92	115	82
Average Ranking %	96%	99%	92%	97%	71%	83%	67%	45%
Average Accuracy %	86%	71%	98%	97%	94%	94%	94%	90%

Table 6a: EBV's of sires from three properties and the EBV's from the AI sires utilized in 2017

It is apparent, as the trial design was intended, that AI sires with relatively extreme and high accuracy calving ease EBV's can improve out comes when other environmental conditions or the effect of maternal genetics contribute significantly to dystocia.

The EBV's for calving ease and growth, their ranking, and their accuracy for each of the syndicate bulls from 3 properties and the AI sires used over all properties in 2017 are shown in Table 6. Each property's EBV's vs those of the AI sires are also expressed in graphical form for calving ease indices (Figure 6b), and for growth indices (Figure 6c).

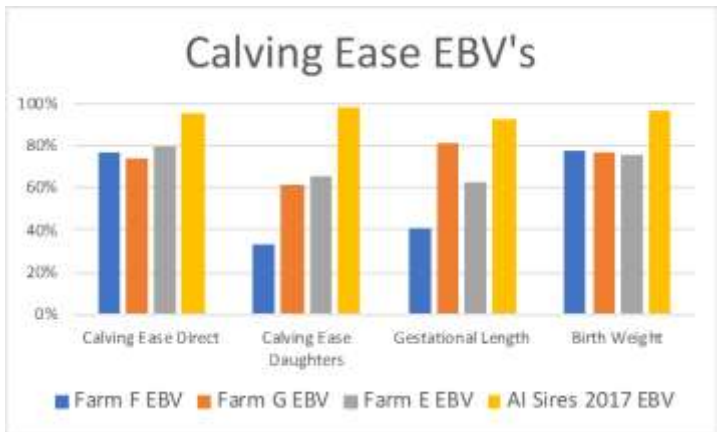


Figure 6b: Calving Ease EBV's expressed as a percentile ranking comparing 3 properties and AI sires used in 2017 (The higher the % the more advantageous the EBV)

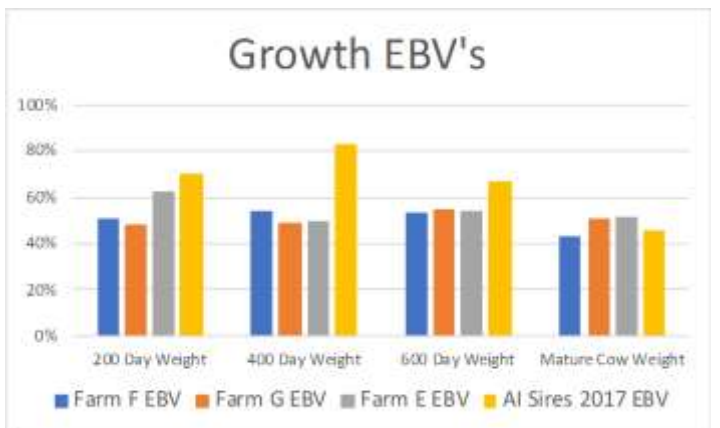


Figure 6c: Growth EBV's expressed as a percentile ranking comparing 3 properties and AI sires used in 2017

Fixed Time AI Into Commercial Heifer Cont.

But What Does AI Cost?

Prior to the trial commencing, an estimate of the cost of integrating FTAI was modelled.

The average Angus bull purchased in Australia in 2017 averaged \$7634 (Beef Central, December 7, 2018). The average Angus bull is used for 3 seasons, and has an approximate salvage value of \$1,500, assuming he is not NVD when culled. Bulls conservatively consume as much as a cow and a half, essentially displacing 1.5 cows and hence 1.26 calves, assuming an 84% conception rate overall. Calves have been averaging around \$900. A bull's estimated annual costs are therefore $(\$7634 \text{ (Purchase Price)} - \$1500 \text{ (Cull Value)}) / 3 \text{ (Expected Longevity)} + 1.26 \text{ (Unborn Calves)} \times \$900 \text{ (Average Calf Value)} = \3179 . If we divide a bulls annual running cost of \$3179 by a booking of 33 heifers with a conception rate of 84% over six weeks $(\$3179 / 33) / 0.84$) we come up with an annual cost of approximately \$115 per calf born over a roughly six week calving.

All producers will use the same AI semen. One round of AI using a new intra vaginal progesterone device, reused for the second round would cost about \$18 in drug costs, approximately \$20 in semen costs, and \$8 in professional fees, not including travel. This amounts to \$46 per cow AI'd plus travel. However, each producer would have had variable costs due to pack sizes of pharmaceuticals. Further the bulls utilized in the trial will range from \$20 to \$30 per straw.

If the heifers are initially AI'd utilizing FTAI, then 2% back up bulls will suffice, rather than 3%. 2/3 of the bull requirements will cost 2/3 of the previously calculated bull cost distributed over the entire group plus the cost per head of AI not including travel for a total cost of \$123 per calf born.

Estimated Breeding Costs Between Groups:

Natural Cover Alone = \$115

FTAI + Natural Mating Back Up = \$123

The true AI cost per producer including wasted product (left overs), true semen costs, technician time, and travel was calculated.

Utilizing the average Australian Angus bull price from 2017 of \$7,634, bull requirements with or without integrating FTAI (3% or 2%), actual drug costs per producer (including extra product which would be carried over to next year and travel), and factoring in measured conception rates, the costs of the two options can be

compared. It is worth noting, that in subsequent years, by reusing devices an annual savings of over \$8 will be realized by reloading Progesterone releasing devices and carried over product will be more evenly distributed. The results are summarized in Table 7 and Figure 7.

FTAI Integrated	Total Number Mated	Pregnancy Rate	Bull Requirements @ 2%	Total Annual Bull Cost	Per Head Bull Cost	AI Costs per Head	FTAI Integrated Mating Cost per Pregnancy	Cost Difference
A	391	83.80%	8	\$25,482.00	\$77.62	\$53.40	\$131.02	\$20.88
B	38	100.00%	1	\$3,179.00	\$83.66	\$64.87	\$148.53	\$60.28
C	50	76.00%	3	\$1,179.00	\$83.66	\$67.83	\$166.47	-\$12.88
D	49	88.00%	3	\$3,179.00	\$73.72	\$73.42	\$147.14	-\$1.15
E	144	77.50%	3	\$9,537.00	\$85.46	\$48.10	\$133.56	\$16.29
F	109	91.40%	2	\$6,358.00	\$63.82	\$46.53	\$110.35	\$11.15
G	204	89.20%	4	\$12,716.00	\$69.88	\$56.17	\$126.05	\$24.64
Farm Average					\$76.83	\$57.90	\$134.73	\$17.09
Syndicate Mated	Total Number Mated	Conception	Bull Requirements @ 3%	Total Annual Bull Cost	Per Head Bull Cost	AI Cost per Head	Syndicate Mating Cost per Pregnancy	Cost Difference
A	391	81.20%	11	\$34,969.00	\$110.14	\$0.00	\$110.14	-\$20.88
B	38	94.80%	1	\$3,179.00	\$88.25	\$0.00	\$88.25	-\$60.28
C	50	80.00%	2	\$6,358.00	\$158.95	\$0.00	\$158.95	\$12.88
D	49	87.50%	2	\$6,358.00	\$148.29	\$0.00	\$148.29	\$1.15
E	144	75.30%	4	\$12,716.00	\$117.27	\$0.00	\$117.27	-\$16.29
F	109	88.20%	3	\$9,537.00	\$99.20	\$0.00	\$99.20	-\$11.15
G	204	92.20%	6	\$19,074.00	\$101.41	\$0.00	\$101.41	-\$24.64
Farm Average					\$117.64	\$0.00	\$117.64	-\$17.09

Table 7: Comparison of mating cost per pregnancy between properties and treatments.

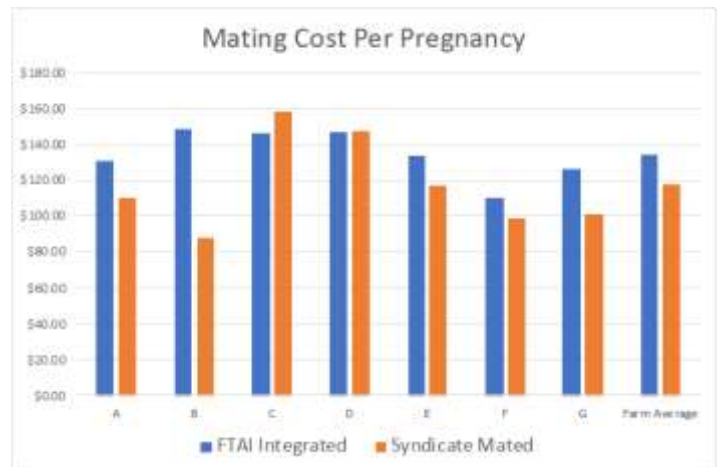


Figure 7: Comparison of mating cost per pregnancy between properties and treatments.

Has the Trial Made a Difference?

Of the 7 original producers, all 7 have committed to integrating FTAI into their commercial heifer joining programs moving forward after the 3 year trial concludes. 4 of them have dropped out of the trial professing that they would prefer to AI their entire heifer population instead of participating in the subsidized trial.

An important aspect of any PDS is to demonstrate appetite for adoption amongst the core producers (those that participated) as well as observer producers. So far, we have had excellent success in adoption amongst the core producers. We are yet to measure the success of the PDS amongst observers. Key to measuring observer opinion are surveys.

Fixed Time AI Into Commercial Heifer Cont.

A Survey Monkey survey was distributed widely within the Esperance district. There were 31 responses. Some of the findings were quite interesting. 18 of the 31 respondents already integrate FTAI into their heifer mating programs. Very interestingly, all respondents that currently AI responded that they intend to continue AI, whilst only 23% of those which have not AI'd intend to consider integrating FTAI. Further, the results querying the benefits of integrating FTAI were strongly biased towards more positive responses from those that have already utilized AI in their production system. Apparently, once a producer begins integrating FTAI into their commercial heifer mating programs, they continue with the practice and perceive it to benefit them over a range of aspects within their production system. The graphs below highlight some of the findings

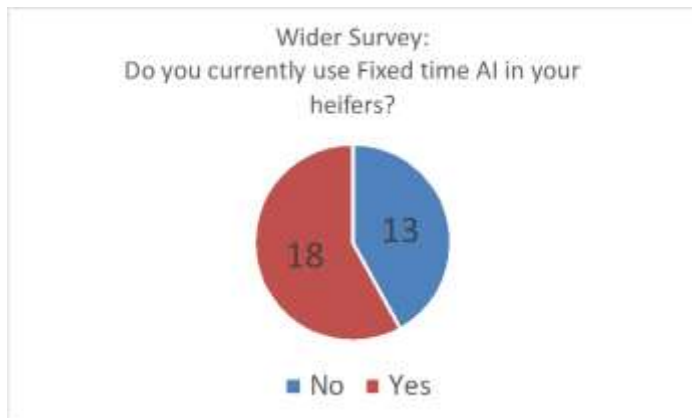


Figure 9: Question 1 of the Wider Survey

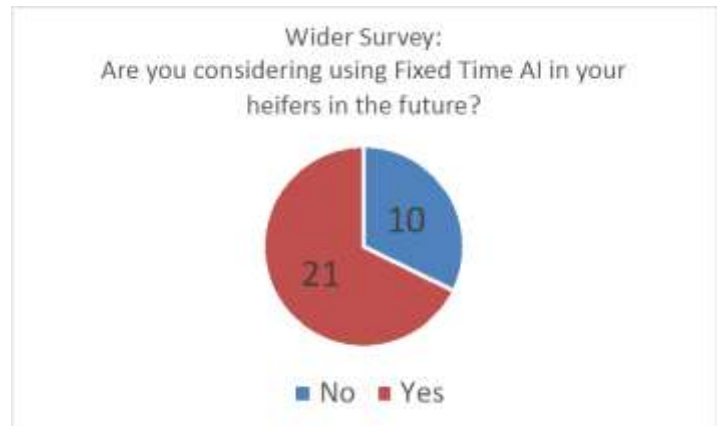


Figure 10: Question 2 of the Wider Survey

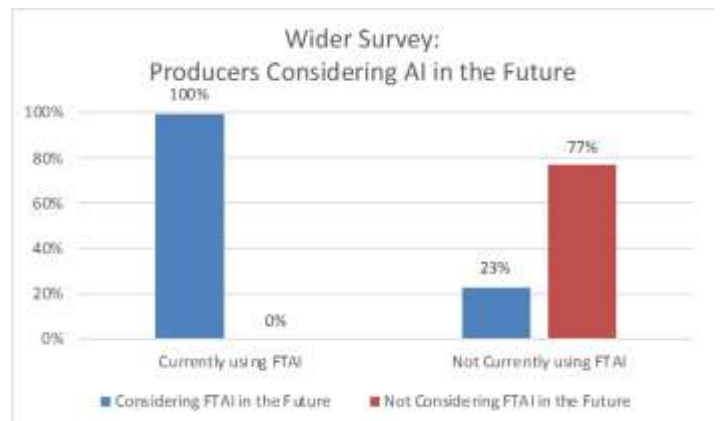


Figure 11: Questions 1 and 2 Expanded

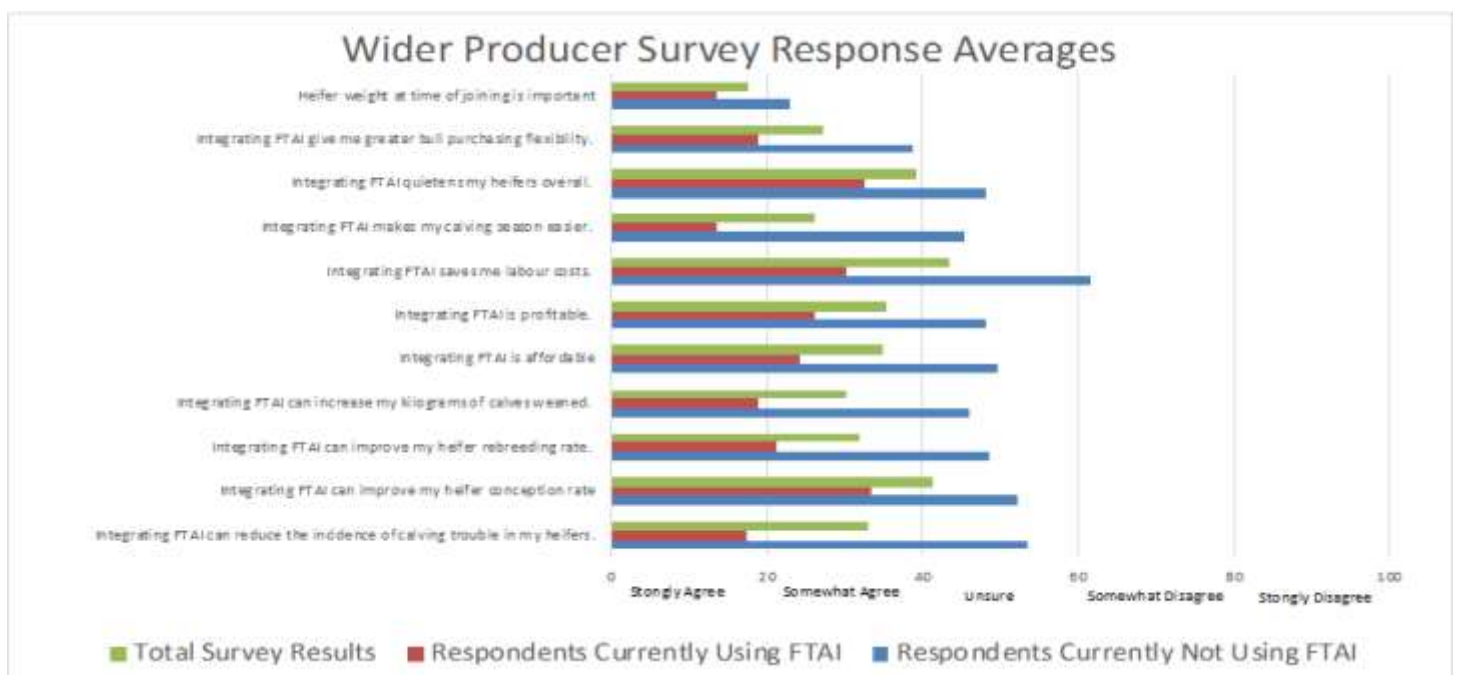


Figure 12: Questions 3-14 Averaged

Fixed Time AI Into Commercial Heifer Cont.

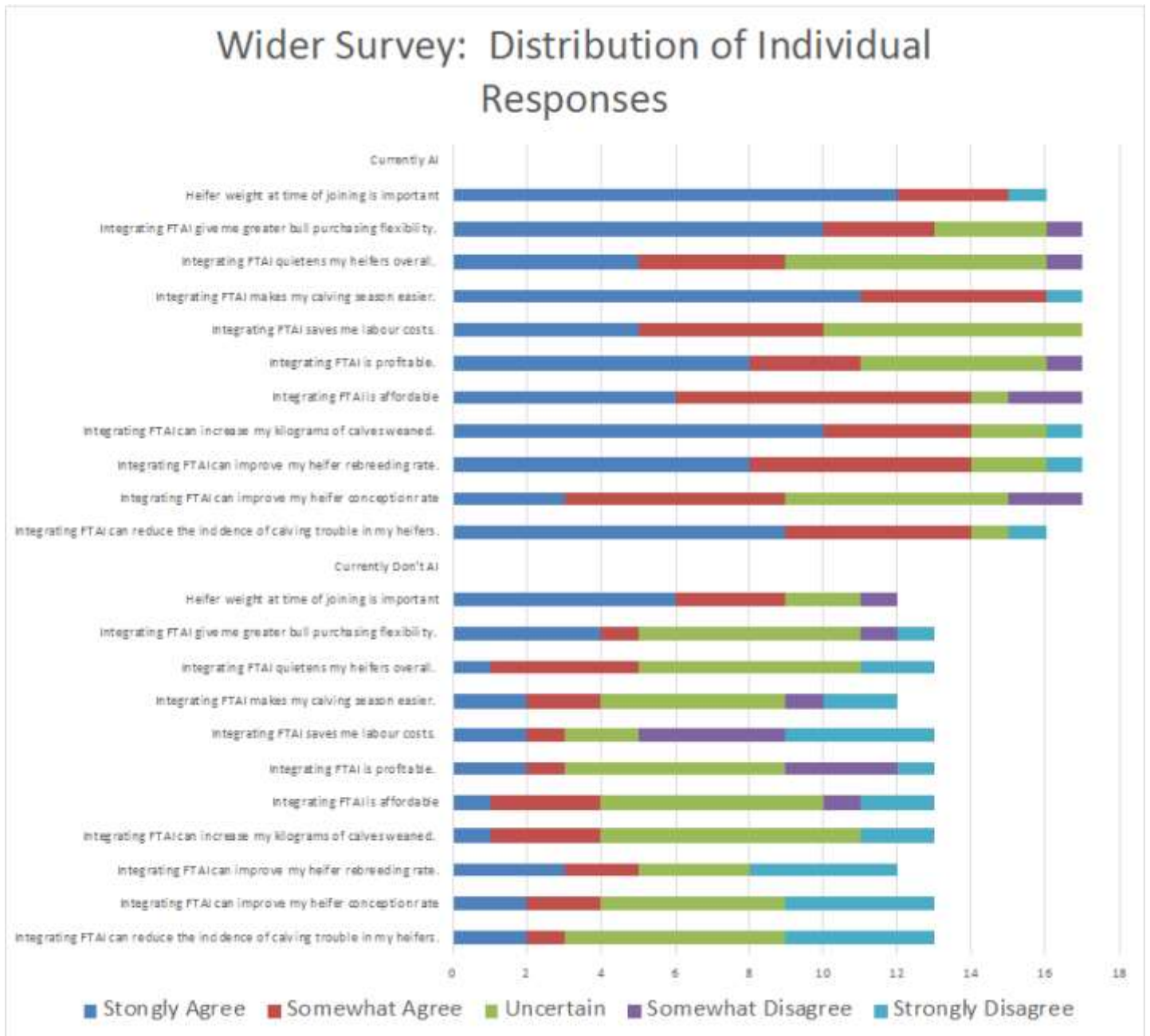


Figure 13: Survey Responses Mapped Based on Prior FTAI Experience

What about Me?

We are in our final, third year of the PDS. If you haven't already put the bulls out with your heifers and would like to be involved please contact ASHEEP or Enoch at 0427 716 907. Roughly 75% of the costs of the AI program will be covered by MLA, ABS, and Vetoquinol.

Have you been wondering if AI can improve your profitability? Now is your chance to prove it to yourself without paying for it yourself! Allow us to Demonstrate to you, the Producer, at your Site. That is what the MLA PDS program is all about!

Enoch L Bergman DVM



Bronze Sponsor: ANZ Agribusiness

The marked decline in Australia's sheep numbers has ultimately benefited the industry leading to its strongest position in decades, according to ANZ's agricultural insight report, Shear Brilliance.

Released in Shanghai last month during ANZ's latest customer delegation to Asia, the report highlights the drastic decline in sheep numbers during the past 50 years. In 1970 the national flock was around 180 million, and today sits at around 69 million, run by approximately 31,000 producers.

"The domestic decline in sheep numbers was caused by a range of factors, including low sheep and wool prices and a shift from sheep to grain and cattle farming which at the time provided more attractive export options and were viewed as less 'hands-on' to run," said ANZ Head of Agribusiness Mark Bennett.

ANZ's report highlights that while China continues to build its flock, Australia and New Zealand remain the world's two largest producers and the outlooks for both sheep meat and wool look positive.

For sheep meat, prices are high and are expected to remain so, due to low Australian sheep numbers which are estimated to grow by around 1 per cent per year from 2020. A lack of near competition, with the exception of New Zealand, also reduces the chance of a major over-supply.

Falls in domestic lamb and mutton consumption have stabilised and make-up around ten percent of the Australian meat diet, while sheep meat exports continue to grow. China is now the largest market for Australian sheep meat, while the Middle East and the US provide strong demand.

"While sheep meat may only be a relatively small percentage of China and the US's total meat consumption, the sheer scale of these markets means large volumes of Australian product are required," said Mr Bennett.

For Australian wool, the outlook is also promising. While the world's flock is increasing, its focus is on sheep meat, creating limited wool supply. This has led to export opportunities, with China's wool imports rising from around 200,000 tonnes in the early 2000s, to more than 350,000 tonnes in recent years.

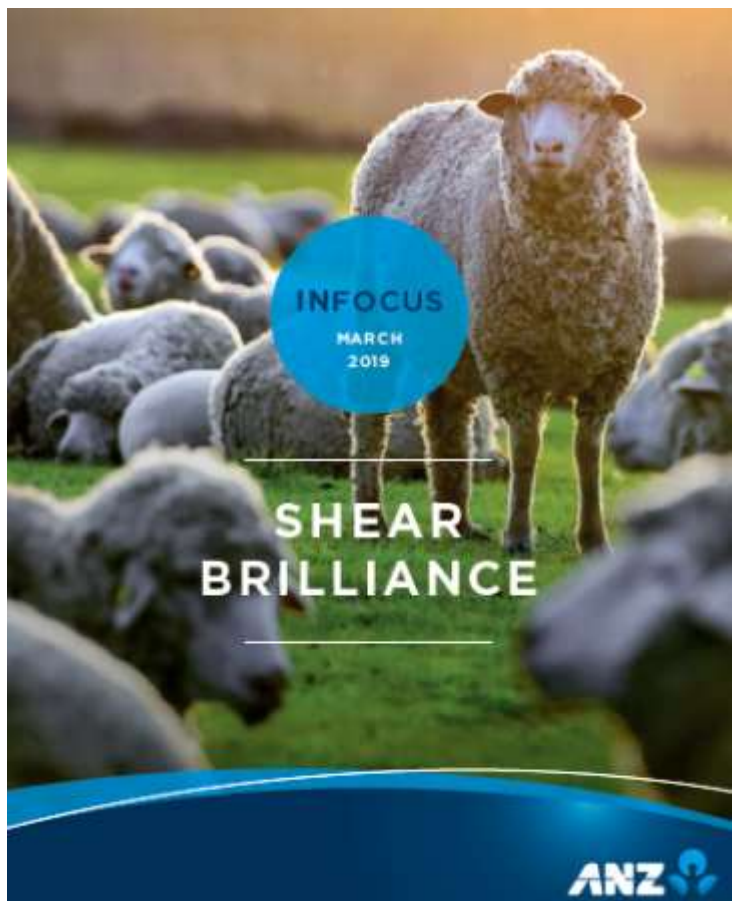
"Limited supply, particularly for fine apparel sub 24.5 micron wool, combined with growing interest in natural fibres over synthetics amongst Asia's middle-class, is expected to maintain strong demand for Australian wool," said Mr Bennett.

Despite the rosy outlook, ANZ's report highlights a number of challenges for the industry.

"Changing consumer trends including a potential preference for grain finished meat, perceived health concerns regarding red meat consumption and the wider availability of alternative proteins in major export markets, could pose some risk," said Mr Bennett.

"Wider political and economic factors such as animal welfare concerns, trade regulations as well as climate variability and biosecurity risks, are also issues that the industry must monitor and prepare for."

Please contact your local Agribusiness Manager Patrick Jannings at patrick.jannings@anz.com or State Agribusiness Manager Sabin Ivey at sabin.ivey@anz.com for a copy of the report or you can view an electronic copy at: thesbhub.com.au/news-and-insights



Case Study: The Lay Family

Coolindown Farms is owned and operated by the Lay family and situated 55km east/northeast of Esperance. It is a mixed farm enterprise utilising approximately 3000Ha, spread over 4 locations. About 80-85% of land is cropped to Canola/Wheat/Barley or Lupins and mating close to 3300 ewes.

Coolindown Farms breeds its own merino rams from an internal nucleus flock started 40 years ago by Deons father, Jim. The first 5 years of life for a ewe in the enterprise is based on breeding for the Merino wool market life beyond that point changes to being mated with White Suffolks for fat lamb production.

Shearing on Coolindown Farms is split with ewes, ewes lambs and anything heading to market going through the shed in mid January with the Rams plus any dry ewes going through in August before being sold. On the wool side of things, the Lays are looking for long staple/white wool, currently lambs and weaners produce 16/17 micron and adults 18/19 micron fleece.

Our current breeding objectives are to increase the size of our sheep as we have moved from selling 2 year old wethers to the Live Export market prior to 2015 and are now focussed on selling to the local lamb market this in turn means we no longer carry wethers past 1 yr old. Coolindown Farms doesn't aim for being top of the market, the biggest or the best. Our objectives are based around maximising the feed produced as we all do in crop production and then utilising the feed (harvest) to sustain the highest stocking rate possible.

Pushing stocking rates has been a primary focus of Deons' for many years. Prior to the introduction of crop grazing Coolindown Farms had winter grazed DSE's around 8-10 dependant on season. The experimentation around crop grazing since this time and its integration into our system assisted us in achieving our peak WDSE to date of 17.3 in the 2017 season. For the last two years sheep have come out on top over crops in our gross margin assessments.



Incorporating spread clay



Preg scanning

Crop varieties, timing and establishment is done as early as possible and staggered with high consideration given to the crop grazing side of the enterprise, we have had great success with Urambie Barley and CL970 Canola.

Clay spreading has been a part of the program for the last 20 years, systematically improving all the non wetting soils, this has been a valuable investment for both the crop and pasture side of the enterprise. Serradella has been used to improve pasture but moving forward it will be seeded in combination with barley/oats to overcome the slow establishment issues associated with Serradella.

Deon and Josh participated in the Lifetime Ewe Management course in 2017 to improve ewe nutrition, pasture management, feed budgeting and understanding different requirements of different classes of stock. In the 2 years since the LTEM course was completed weather factors have impacted on the expected increases in lambing percentage but we are confident this will come. Traditionally we have lambed starting mid-July to get away from the need to feed ewes at lambing time. This year we have moved that forward 2 weeks to the start of July to allow ewes to finish their lambing on crops as stem elongation commences that can reduce crop yields but still providing lambs with an element of protection.

The recent advancements in technology in particular Internet of Things (IoT) have peaked the interest of Belinda, who has been looking at how technology may be able to produce the next 1% improvement to the bottom line, resulting in Coolindown Farms becoming the first farm in Australia to track the movement of sheep using Sigfox technology. Belinda is running a series of trials over the next 3 years looking at how IoT devices, such as the collars she imported from Spain, may be able to improve mortality rates and identify any benefits to overall flock management.



Belinda's collar trial

Platinum Sponsor: Summit

A Focus on Potassium Nutrition

Potassium (K) is an essential macro nutrient required by plants in relatively large amounts (about 1.5 to 2.0% of plant weight). Much of the K taken up by roots accumulates in the stems and leaves, which is why large volumes of foliage removed through hay and silage can deplete soil K reserves quite quickly. Without regular replacement, K often becomes production limiting.

Leaching

One of the myths about potassium (K) is that it leaches rapidly. In fact, potassium is a cation and binds quite strongly to soil particles. Leaching may be a problem in the sandy soils that receive high rainfall. However, in stronger soils in lower rainfall areas where the soil has a reasonable clay or gravel content, or in duplex sand over clay/gravel soils, leaching is generally not a major concern. In waterlogged clays, or soils where surface erosion is likely to be a problem, then delayed or split K applications may be beneficial.

Lime and Potash

Applying lime to soils that have low to marginal levels of K (below 140ppm) can have a detrimental effect on K availability to the plant. The application of lime applies large amounts of calcium. Calcium and K appear to be absorbed through the same part of the root, so the plant will absorb the nutrient that is in abundance. The other possibility is that the calcium (also a cation) will replace the K on the soil colloid, releasing the K for leaching.

K is Essential For

- Protein synthesis
- Breakdown of carbohydrates which provides energy for growth
- Translocation (movement) of metal ions such as iron (Fe)
- Controlling ionic balance
- Helping the plant resist disease
- Withstanding drought, cold and frost
- Regulating water lost to the atmosphere
- Efficiency of nitrogen uptake

K Deficiency

K is a mobile nutrient in the plant. In deficiency situations it moves from older leaves to younger ones to support new growth. Therefore, symptoms appear on older leaves first. Symptoms begin as a speckling along the leaf, spreading quickly to the tip and the margin. Complete death of the older leaves may even occur. In ryegrass, deficiency is often seen as a 'spear tip' effect on middle to older leaves.

General Guide to Potassium Applications in WA Pastures Based on Soil Test Levels

K soil test level (ppm or mg/kg)	Recommended K rate (kg of K/ha)	
	Medium rainfall	High rainfall
greater than 120	0	0
80 - 120	10-20	20-30
60 - 80	20-30	30-40
40 - 60	30-50	40-60
less than 40	40-60	50-70

How Much is Needed?

Summit inSITE soil testing is revealing that without adequate replacement, in many lighter soil types (and in some heavy soils too) that have been cut for hay or silage over a number of years - K levels have dropped below 100 ppm. It's well recognised that K levels below 100 ppm are marginal for clover production and the experience of many growers indicates that on the heavier soil types (with good cation exchange capacities) levels below 150 ppm may be a 'trigger' point for applying potash. The table above gives a good general guide to K requirements in pastures based on soil analysis. It should be noted that Balansa and Persian clovers are vigorous varieties often used for hay making. Observations indicate these varieties are more sensitive to K deficiency than other pasture legumes. If soil tests indicate levels around the 120 to 150 ppm then the use of K on these varieties, would be a wise precautionary measure.

For more on the Summit product range and SummitQ services, please contact your local area managers:

Nick Donkin (Esperance East) 0428 715 045, ndonkin@summitfertz.com.au

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UWA researchers helping Australian sheep producers tackle high-oestrogen clovers

A team of researchers at The University of Western Australia are working together with farmers to tackle an issue which could have a devastating impact on Australian sheep producers.

Older cultivars of subterranean clover sown up to the 1970s can contain high levels of the oestrogen formononetin in their green leaves. Associate Professor Megan Ryan from The UWA Institute of Agriculture and UWA School of Agriculture and Environment said that continued exposure to high-oestrogen clover cultivars could have serious and long-term impacts for grazing sheep.

“The impacts can include temporary infertility and, if grazing occurs for prolonged periods of time, permanent infertility,” Professor Ryan said. “Unfortunately, the grazing of high oestrogen pastures can also cause an increase in ewe mortality, uterine prolapse, difficult births and post-natal lamb mortality”.

The issue was thought to have been largely resolved in Australia in the 1980s with the introduction of new clover cultivars selected for low oestrogenic compounds. However, in a recent national survey by UWA, the old subterranean clover cultivars were found to still be common in many pastures across southern Australia.

“Many sheep producers in Western Australia are not yet aware of this issue, and may mistakenly associate poor reproductive performance of their sheep with other animal husbandry problems,” Pro-

fessor Ryan said. “To allow prime lamb producers to return to their full potential, we urgently need to raise awareness and tackle the issue of high-oestrogen subterranean clovers again”.

A free service will be offered to Australian farmers in 2019, through a research project led by Dr Kevin Foster from UWAs School of Agriculture and Environment and Institute of Agriculture, and jointly funded by UWA and the Meat and Livestock Australia Donor Company. The research team will map the occurrence of high-oestrogen subterranean clover cultivars, and provide advice to farmers on how to remedy this issue.

“We will measure levels of oestrogens in green leaf samples and, when possible, identify the subterranean clover cultivars in samples submitted by farmers from across southern Australia,” Dr Foster said. “We want to get samples from a wide range of pastures with a subterranean clover component, whether they are grazed by sheep or not.”

To submit a sample of subterranean clover from your farm, contact Dr Foster on kevin.foster@uwa.edu.au to register your interest and provide a postal address. The free sample kits will be mailed out in mid-June and there will be a limited number available.



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Auction Forward - Indicative Base Pricing Sheet

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Month	18		19		20		21		22		23		28		30		Min Price Premium
	Indicative	Change	Indicative	Change	Indicative	Change	Indicative	Change	Indicative	Change	Indicative	Change	Indicative	Change	Indicative	Change	
May-19	2240	-110	2160	-110	2150	-100	2140	-100	2110	-100	2080	-100	1140	-110	900	-30	12
Jun-19	2240	-110	2160	-110	2150	-100	2140	-100	2110	-100	2080	-100	1130	-120	900	-20	43
Jul-19	2230	-100	2150	-100	2150	-100	2130	-100	2100	-100	2070	-100	1120	-130	900	-10	60
Aug-19	2220	-60	2140	-60	2140	-40	2120	-40	2090	-40	2060	-40	1110	-20	870	-30	74
Sep-19	2215	-45	2135	-45	2120	-30	2100	-30	2070	-30	2040	-30	1090	-10	860	-40	85
Oct-19	2210	-40	2130	-40	2100	-30	2090	-30	2060	-30	2020	-30	1070	-10	840	0	95
Nov-19	2210	-40	2130	-40	2080	-50	2070	-50	2040	-50	2000	-50	1050	10	820	0	103
Dec-19	2210	-40	2130	-40	2070	-60	2060	-60	2020	-60	1980	-60	1020	0	800	0	111
Jan-20	2210	-40	2130	-40	2060	-70	2050	-70	2010	-70	1970	-70	1000	0	790	0	119
Feb-20	2210	-40	2130	-40	2060	-70	2050	-70	2010	-70	1950	-70	995	0	785	0	126
Mar-20	2200	-50	2120	-50	2060	-70	2050	-70	2010	-70	1950	-70	990	0	780	0	133
Apr-20	2190	-60	2110	-60	2060	-50	2050	-50	2010	-50	1950	-50	985	0	775	0	139
May-20	2180	-70	2100	-70	2060	-50	2050	-50	2010	-50	1950	-50	980	0	770	0	145
Jun-20	2180	-50	2100	-50	2060	-40	2050	-40	2010	-40	1950	-40	975	0	765	0	151
Jul-20	2180	-50	2100	-50	2050	-40	2040	-40	2000	-40	1940	-40	970	0	760	0	156
Aug-20	2180	-50	2100	-50	2030	-60	2020	-60	1980	-60	1920	-60	965	0	755	0	160
Sep-20	2180	-50	2100	-50	2030	-60	2020	-60	1980	-60	1920	-60	960	0	750	0	166
Oct-20	2180	-50	2100	-50	2030	-60	2020	-60	1980	-60	1920	-60	955	0	745	0	171
Nov-20	2180	-50	2100	-50	2030	-60	2020	-60	1980	-60	1920	-60	950	0	740	0	176
Dec-20	2180	-50	2100	-50	2030	-60	2020	-60	1980	-60	1920	-60	945	0	735	0	180

AWEX Micron Price Guides

Northern	2365		2231		2189		0		0		0		0		0		
Southern	2299		2218		2189		2200		2177		0		1180		981		
Average	2332	-48	2225	-59	2189	-64	2200	-46	2177	-58	#DIV/0!	#DIV/0!	1180	-143	981	-24	

Note: Indicative Minimum Price Premium is based on a strike price at Auc Fwd indicative quotes

Disclaimer: Indicative Prices only. This information is believed to be accurate as far as possible, but no warranty is given as to the accuracy or reliability and no responsibility is taken by Elders, its subsidiaries and affiliates, its officers, employees or agents, for any errors or omissions



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Shearing School for Beginners

ASHEEP Committeeman Basil Parker is organising a Beginner Shearing and Wool Handlers School starting on the 1st July 2019. at EPASCO Farms Condungup.

The school will run over two weeks for anyone interested in a career in the shearing industry. There will be placements for up to 15 shearing trainees.

There will be a bus provided each day along with lunch.

AWI will provide funding for the course so there will be no cost to participants.

There will be one wool handling trainer and one or two shearing trainers available.

Basil would also like to encourage ASHEEP members to have a learner shearer stand available in your shed at shearing and even ask your contactor if you can have a learner shearer.

For more information or to register your interest please contact Ken Hart on 0458 812 160 or Basil Parker on 0427 751 149



2019 ASHEEP Feed Survey

This year's Feed Test Survey was very well supported with about twice as many samples submitted as anticipated. Several contributions need to be acknowledged for their support of the survey. Firstly Esperance Rural Supplies for their very generous support. Even when they collected more than twice as many samples as anticipated their support was unwavering. Thanks also to Independent Lab Services for processing the samples. The number of samples on top of their normal commitments and an equipment breakdown all added to the fun. Most importantly thank you to all of the participants who submitted samples. Without you there can be no survey.

Because of the volume of samples and the other factors mentioned not all of the samples were able to be processed in time for all of the results to be presented at the Autumn Field Day. The full results, including the samples that were unable to be processed for the Field Day are included in this report.

The samples were classified into five different categories; cereal straw, cereal hay, pasture hay, silage and grain/grain mixes. There was the well-known wide variation in metabolisable energy and crude protein between the various categories but there was wide variation within some of those categories. For example in the cereal hays the best sample contained 55% more metabolisable energy compared to the sample with the lowest value. The variation in crude protein was even greater. For example the sample with the highest level of crude protein was 418% greater than the lowest sample. However that was comparing oats to lupins so perhaps not a reasonable comparison. The message to take away however is that the variation is wide and to ensure the most efficient delivery of nutrition to the various classes of livestock a feed test is a very good investment, particularly if you have a large investment in supplementary feed reserves.

Interpreting the results

ADF, DDM, ME, CP, WSC and NDF are all expressed on a Dry Matter (DM) i.e. Moisture-free basis.

ADF = Acid Detergent Fibre – The residue that remains after extraction of plant material with an acid detergent solution. ADF gives an indication of the plant material that may be indigestible to ruminants.

DDM = Digestible Dry Matter – The difference between the DM consumed and the DM excreted in the faeces, expressed as a percentage of the DM consumed. DDM is estimated using a laboratory procedure calibrated against DDM values for feedstuffs measured in feeding trials with live animals, usually sheep.

DDM values for silages are adjusted for volatile compounds, which are assumed to be 100% digestible.

ME = Metabolisable Energy - The energy in the feed available to the animal to maintain body activity and growth etc. ME is calculated from DDM and is expressed as Mega Joules (MJ) per kg DM.

CP = Crude Protein – The amount of true protein and non-protein-nitrogen in a feed and ultimately provides the building blocks of the body, the amino acids. CP is determined as Nitrogen content x 6.25.

WSC = Water Soluble Carbohydrates - The readily fermentable plant sugars extracted by water solutions that are important to drive a desirable type of fermentation during the ensilage process.

NDF = Neutral Detergent Fibre - The residue remaining after extraction of plant material with a neutral detergent solution, being mostly cell wall material. NDF contains hemi-cellulose that may be digestible. These provide the "filling effect" when stock eat forages/roughages.

Mature stock require about 7.0% CP and 8.0 MJ ME per Kg in their diet DM for maintenance.

2019 ASHEEP Feed Survey Cont.

Cereal Straw

Table 1 shows that the ADF values for five of these seven Cereal straws are high as to be expected. Similarly six of the seven NDF values are also high. All of these straws have low WSC values (under 12%) as these “Sugars” will ultimately have formed the grain that was harvested. Another component that can lead to a reasonable amount of variation in the DDM and ME values for Cereal straws is the indigestible Lignin content - mostly associated with the ADF. Lignification can also be a factor that influences the DDM and ME values of Cereal hays if they are fairly mature when cut.

of Wheat straw will lower the DDM and ME values to less than that for a Barley straw, but in this Wheat straw the grain appears to have offset these negative aspects to a fair extent.

With the ability to select-out the grain and the higher nutritive value leaf components, sheep given ad lib access to this Wheat straw should be able to meet their maintenance needs for CP and ME. The Barley straw could be fed ad lib with supplemental CP and ME at appropriate levels to maintain mature sheep - probably best supplied as Lupins along with a complete loose Mineral lick.

ID	Owner	Description	DM (%)	ADF (%)	DDM (%)	ME (MJ/Kg)	CP (%)	WSC (%)	NDF (%)
1	Quintarra Farms	Barley straw	89.8	51.3	45.3	6.2	3.0	3.7	81.4
2	Hargate Park	Cereal straw 44F	88.9	51.3	43.0	5.8	2.4	>1.0	85.9
3	Chilwell	Cereal straw	88.0	52.2	40.0	5.3	3.5	4.2	82.3
4	Stuart Parker	Baled Barley chaff	87.6	39.3	59.5	8.6	7.2	2.6	69.2
5	Falom P/L	Barley straw	87.5	46.4	45.2	6.2	4.1	2.9	77.4
6	J. Della Vedova	Wheat straw	91.7	44.4	50.0	7.0	6.7	6.0	73.5
7	J. Della Vedova	Barley straw	89.6	47.8	48.1	6.7	4.3	4.2	76.3

Table 1: Nutritional values for the Cereal straw samples.

There are two “stand-out” Cereal straws. The first is Stuart Parker’s Baled Barley chaff. There is a good proportion of leaf relative to stem material present, which is indicated by the modest ADF and NDF values for a Cereal straw along with the grain retained in the sample. These desirable attributes are reflected in the very respectable CP, DDM and ME values for Cereal straw and at these levels may support better than maintenance of mature stock making it a potentially valuable base feedstuff for stock in confinement.

The second “stand out” is the Della Vedova Wheat straw. The grain in this sample of appears to have made a valuable contribution to lower the ADF and NDF values and consequently raise the DDM and ME values as well as the CP. Often the coarse Fibre and the lignin in the stems

Cereal Hay

The ADF and NDF fibre attributes for most of these Cereal hays are quite high being well above 30% and above 60%, respectively (Table 2). Consequently Table 2 reveals many of these hays have DDM and ME values that are well down with most values under 60.0% and 8.5 MJ ME/kg DM. Many of these Cereal hays have WSC values well under 12% and at these low levels the WSC will make little contribution to the DDM value and/or the palatability of the hay. There are some exceptions such as the Eime frosted Barley hay and the Quintarra Farms Barley hay where the small grains in the sample will have contributed to lift the DDM and ME. Although Starch is not reported, the Starch from the maturing grain in both of the Hargate Park Oat hays, the Chilwell Orleans Barley hay and John Wallace’s Oat hay will have helped to hold-up the DDM and ME values despite the quite high ADF and NDF values – albeit not overly high for John Wallace’s Oat hay.

2019 ASHEEP Feed Survey Cont.

ID	Owner	Description	DM (%)	ADF (%)	DDM (%)	ME (MJ/Kg)	CP (%)	WSC (%)	NDF (%)
8	Eime	Frosted Barley hay	89.7	33.5	61.4	8.9	6.6	10.4	60.4
9	Quintarra Farms	Barley hay	89.7	30.1	65.7	9.7	6.9	10.9	56.2
10	Quintarra Farms	Oat hay	89.5	38.5	54.2	7.7	8.6	6.7	65.9
11	Quintarra Farms	Oat/Rye hay	88.6	36.6	57.1	8.2	9.7	8.3	61.6
12	Schutz	Oat hay	89.6	40.3	53.8	7.6	6.2	7.3	68.2
13	Hargate Park	Oat hay 45G	89.6	37.4	55.6	7.9	6.3	4.8	63.4
14	Hargate Park	Oat hay 46A	89.6	36.4	56.0	8.0	7.6	4.7	61.9
15	Chilwell	Orleans Barley hay	87.0	36.1	60.7	8.8	6.4	11.5	61.1
16	Ridley Plains	Oat hay	83.8	25.8	70.0	10.4	9.9	21.8	49.1
17	Peter Gale	Oat hay	87.1	35.8	58.3	8.4	9.3	8.0	61.6
18	Compagoni	Oat/Rye hay	89.9	35.1	58.2	8.4	6.6	13.0	60.3
19	RA & MS Agnew	Oat hay	88.6	36.0	57.9	8.2	9.3	8.2	62.1
20	John Wallace	Oat hay	89.6	34.5	62.2	9.1	5.3	17.9	59.1
21	Falom P/L	Oat hay	89.7	37.0	56.0	8.0	6.4	6.6	64.5
22	Leigh West	Oat hay	89.2	33.0	58.3	8.4	9.4	6.2	60.2
23	Leigh West	Wheat hay	88.1	39.2	50.4	7.1	8.5	8.0	67.7
24	Shepwok	Oat hay	89.0	40.3	58.4	6.7	6.8	7.9	70.0

Table 2: Nutritional values for the Cereal hay samples.

The “stand-out” Cereal hay is the Ridley Plains Oat hay with its quite low fibre attributes and reasonable WSC value all contributing to the very respectable DDM and ME values. Provided this hay is not musty at this fairly high moisture content and is well consumed by stock and with the CP near 10%, this hay could support growth of stock. Around half of these hays have CP values above the fairly high value of 7.5% for a Cereal hay. In some cases this may reflect weather damage which would also account for the low WSC values as WSC is leached when hay is rained-on while drying and this can artificially raise the insoluble CP as well as the more indigestible fibre attributes. Stock should not be forced to eat weather damaged hay and wastage needs to be tolerated so that stock can select-out and consume the higher nutritive value components. Those hays with ME values under the 8.0 MJ ME/kg required to maintain mature stock are generally overly fibrous and even though the CP may be above 7.0% the high levels of fibre will be the main constraint to intake and animal performance when these hays are fed.

Pasture Hays

Table 3 shows that all of these hays have WSC values under 10% as might be expected, especially for the legume dominant pasture hays that are of high CP content as legumes don't have very high WSC values and there is often a negative relationship between CP and WSC. The pasture hays from Falom P/L and Leigh West were both legume dominant hays and they have the highest CP and quite modest ADF and NDF values, which are reflected in the respectable DDM and ME values. With good intakes and at these levels of CP and ME these two hays should support reasonable rates of growth of stock, especially the Vetch hay. The Schutz Seradella hay had a lot of stem material in the sample contributing to this hay having the highest ADF and NDF values, despite the respectable CP as might be expected being legume stem material.



2019 ASHEEP Feed Survey Cont.

ID	Owner	Description	DM (%)	ADF (%)	DDM (%)	ME (MJ/Kg)	CP (%)	WSC (%)	NDF (%)
25	Eime	3 yr old Pasture hay	87.9	39.6	55.4	7.9	5.9	9.6	66.2
26	Schutz	Seradella hay	91.3	42.0	50.1	7.0	10.8	4.9	67.4
27	Wallace	Pasture hay	90.5	37.0	58.3	8.4	6.6	8.3	63.7
28	GR Hoggart	Pasture hay	88.2	37.5	58.2	8.4	11.8	4.4	63.4
29	GR Hoggart	Trikalla Pasture hay	90.4	36.6	59.3	8.6	13.2	5.7	61.4
30	Falom P/L	Pasture hay	91.7	28.6	64.0	9.4	16.4	7.7	53.9
31	Leigh West	Vetch hay	88.6	25.5	67.8	10.0	14.4	9.2	50.7

Table 3: Nutritional values for the Pasture hay samples.

Silage

The results for the Silages are shown on Table 4. For these silages, DM values below about 35.0% leads to an extended fermentation process that uses-up the readily fermentable WSC component while elevating the less digestible ADF & NDF fibre fractions. The elevation of the ADF & NDF leads to a drop in the DDM and ME values. An extended fermentation may also lead to an undesirable aroma and the production of compounds that may adversely affect intake of silage, especially by sheep. Sample 4 appears to have the most desirable aroma reflecting a more restricted ensilage process at this higher DM and this may account for its higher residual WSC value. Despite being quite wet, the other 3 silages don't have an objectionable aroma with Sample 3 probably having the least desirable aroma. With good intakes, the CP and ME for Samples 1, 2 & 3 should be able to support reasonable production while the CP of Sample 4 needs to be raised by feeding some supplemental CP to efficiently utilize its quite respectable ME - probably best fed with some Lupins.

Grain

The Bulk Density (BD) for the 3 Lupins are Ok with screenings of mainly small grains + light trash. The DDM & ME values for all 3 Lupins are very respectable with the lowest ADF contributing to the highest ME of 14.2 MJ/kg DM. The Lentils and the Peas have respectable CP values and both have similar DDM & ME values of around that of a quality of Wheat grain, but with around double the CP of Wheat. With the Starch in these Pulse grains around 40% they should also be a safer source of ME than Wheat. The BD of the Shepwook Oats is down and the minimal screenings are small grains plus a few Rye and Brome grass seeds. The CP of these Oats is very low and the DDM & ME values are both quite modest. The CP of the Ridley Plains Mixed grain 2nds is quite reasonable as are the DDM & ME values for this type of fairly fibrous sample.

ID	Owner	Description	DM	ADF	DDM	ME	CP	WSC	NDF
32	Ridley Plains,	Cereal-based silage	73.6	31.6	63.8	9.7	10.5	13.5	56.1
33	Chilwell,	Chatham silage	69.9	30.9	64.5	9.8	9.6	13.3	54.3
34	Chilwell,	Ocean View silage	68.4	31.8	64.1	9.7	9.8	11.3	55.2
5	Russell,	The Oaks silage	62.5	29.7	67.4	10.2	7.6	16.4	52.4

Table 4: Nutritional values for the Silage samples.

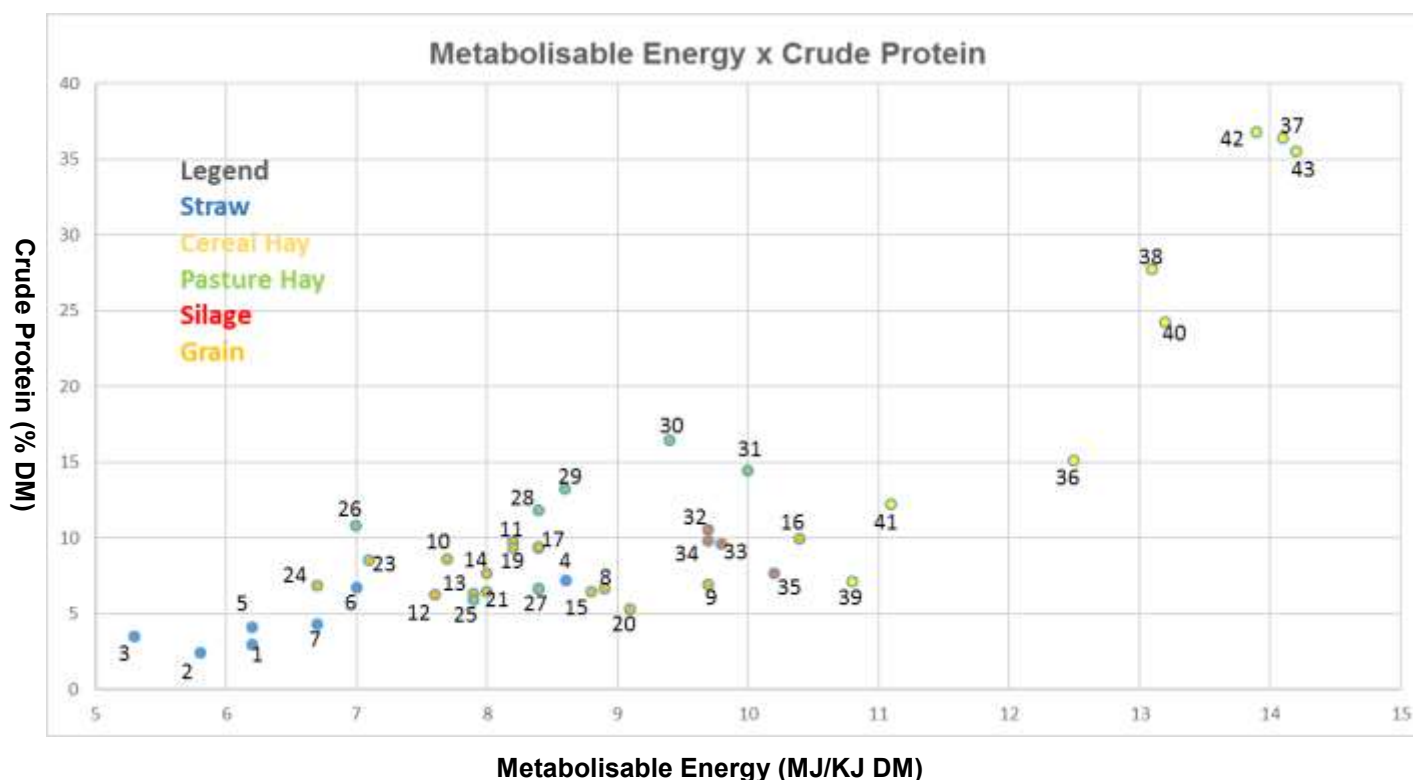
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ID	Owner	Description	DM (%)	ADF (%)	DDM (%)	ME (MJ/Kg)	CP (%)	BD (%)	Screengs % by Wt
36	Wes Graeme	Lamb Feedlot Mix	88.8	11.1	83.5	12.5	15.3	--	--
37	R & M Agnew	Lupins	91.6	19.4	93.6	14.1	36.4	78.0	1.1
38	Stuart Parker	2017 Lentils	91.1	6.6	85.6	13.1	27.7	74.5	--
39	Shepwok	Oats	92.2	15.1	71.8	10.8	7.1	49.0	0.4
40	Shepwok	Peas	90.8	9.1	86.1	13.2	24.2	78.5	1.3
41	Ridley Plains	Mix grain 2nds	89.6	15.6	74.0	11.1	12.2	43.5	--
42	J. Wallace	Barlock Lupins	91.4	20.9	92.5	13.9	36.8	75.0	12.4
43	J. Wallace	Unnamed Lupins	91.0	18.4	94.0	14.2	35.5	75.0	5.1

Table 5: Nutritional values for the Grain samples.

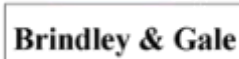
The reported levels of CP and ME are of the right order to support good growth rates of healthy, prime lambs provided the Mix is well eaten and fortified with adequate essential Minerals and Vitamins and the lambs have ad lib access to water. The caustic treated Wheat grain should make this Mix quite safe to help avoid acidosis, but the level of “effective fibre” may be marginal for optimum rumen function. Lot fed lambs may perform better if they can’t preferentially select from the Mix and have access to some long Cereal hay or straw with this Mix.

Plotting Metabolisable Energy against Crude Protein for all samples identified within their feed category. A wide range in variation is shown both across the entire range of samples submitted but very importantly within each category of feed. That variation reiterates the importance of a feed test in a well-planned feed budget when supplementary feeding. This is particularly important when there is a large investment in supplementary feed.



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