



GENSTOCK NEWS

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ANIMAL BREEDING & FLEECE TESTING SERVICES

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As this edition of the Genstock Newsletter hits your mail boxes we hope you have all enjoyed a fruitful harvest and found time for some all important rest and recreation during the Christmas and New Year period.

**This summer issue brings all the latest updates regarding pregnancy scanning and innovations within the artificial breeding industry.
Any queries please contact any of our staff at Genstock.**

It is now that all important time of the year to start preparing our pregnant ewe flocks for their imminent deliveries. This will be greatly enhanced by removing those greedy, non-pregnant ewes from the flock through pregnancy scanning.

Genstock will have four pregnancy scanning crews operating this season to cope with the ever increasing demand and I strongly urge all of you to fax in your requirements as soon as possible, so as to ensure your preferences are met.

Due to the increased demand for multiple birth scanning, we have engaged the services of two very experienced overseas scanning operators for the forthcoming season. Greg Sandall and Ben Lawrence are joining us from New Zealand.

Our scanning operators this season will also include Tim Stevenson, Carol Miller, Liz Barby and Nadine Mincherton.

We are very fortunate to have secured the services of Nadine Mincherton to a full time position. Many of our clients will have already met Nadine, as she has been working for us on a casual basis this season. Nadine is originally from Chapman Valley where her family operates a mixed farming operation. She has recently completed an Agriculture degree at Muresk University and has a very keen interest in sheep genetics.

A WORD FROM CRAIG

Unfortunately Natascha Weil is leaving us shortly and taking up residence in Queensland where she will be completing a Diploma of Applied Science. Natascha's pleasant disposition will be greatly missed; however we wish her all the best with her future endeavors.

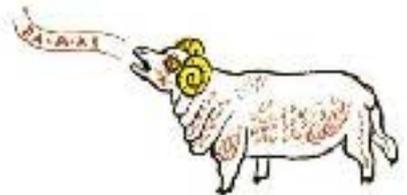
We also wish Bevan Gibbs, great success at Muresk this year. Bevan has been invaluable to us this year with his help with ET programming. Our special thanks to Darren Chapman for all the hours he put in pregnancy scanning last season and his tremendous help at harvest.

As all our clients are now aware, it has become a requirement to sign a contract prior to us conducting work for you. I would like to take this opportunity to thank you all for your acceptance and understanding that it will in turn make our organization far more professional.

With Wagin Woolarama just around the corner I look forward to catching up with many of you in the near future.

Best wishes

Craig



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PREGNANCY SCANNING

It is time to start thinking about pregnancy scanning your ewes. Early planning will potentially:-

- Save you money by combining programs in your area to reduce travel charges.
- Guarantee your preferred dates.
- Increase your lambing percentage by improving on animal husbandry and ewe nutritional preparation.

Please ensure you FAX BACK the enclosed "PREGNANCY SCANNING BOOKING SHEET" as soon as possible to 9834 1062

PREGNANT EWE NUTRITION

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Unless producers have vast quantities of high quality perennial pastures or standing fodder crops, supplementing pregnant ewes in Western Australia is a necessity. The following report is broken up into 2 stages, conception through to 90 days and the last 2 months of pregnancy.

It is important to note however that it is virtually impossible to spell out precise feeding strategies that will cover ewes at all stages of pregnancy across the state. The best way to monitor the levels of supplementary feed is to constantly monitor the condition score of the ewes and ensure they remain in a condition score 2.5 from conception to lambing.

Conception to 90 days

Growth of the placenta (organ responsible for supplying the essential nutrients to and the removal of waste products from the fetus) precedes the growth of the fetus. As a result the size of the placenta is closely related to birth weight and survival chances of the lamb.

By day 90 the placenta has reached full size and weighs about the same as the fetus (400 – 500gms). By lambing the placental weight has declined a little but the fetus has grown to about 10 times the peak weight of the placenta. Optimum lamb birth weight for best survival is 3.5 – 5.5kg. Poor nutrition causing the ewe to lose weight and condition score in the first 3 months of pregnancy will reduce the size of the placenta that in turn reduces the birth weight of the lambs and reduces its chances of survival.

Last 2 months

About 70% of fetal growth occurs in the last third of pregnancy. This drastically increases the energy requirement of the ewe. The increased energy demands are generally met by increasing the amount of feed offered to the ewes and improving the quality of the feed offered. Simply increasing the quantity of a poorer quality feed may not aid the ewe as the increasing size of the fetus reduces the rumen volume and hence the ewe will not have enough room to digest the required feed intake.

The following table indicates the additional energy required by a pregnant ewe (above her maintenance requirement) to produce a 4kg lamb birth weight

Time before birth	Additional energy for single bearing ewes	Additional energy for twin bearing ewes
8 weeks	1.1 MJ ME / day	1.9 MJ ME / day
4 weeks	2.6 MJ ME / day	4.6 MJ ME / day
At term	5.3 MJ ME / day	9.3 MJ ME / day

Note energy required to maintain a 50kg ewe is 6.8 MJ ME / day. If we assume the average metabolisable energy content of barley is 12 MJ/kg DM, a 50kg ewe would maintain live weight on 540 grams of barley per day.

Pregnancy Toxaemia caused by under nutrition in late pregnancy can be fatal for ewes. The ever-increasing energy requirements during the last few weeks of pregnancy often exceed what is available from the feed. The ewe will make up the deficit by mobilising body reserves and in turn loses condition. Ketones are produced when body tissue is broken down and a high concentration of ketones is toxic to the ewe. Careful dietary management during pregnancy can prevent pregnancy toxaemia.

If ewes are fed a predominantly cereal grain based diet then vaccination history, slow introduction of the ewes to the cereal grain diet and the level of calcium in the diet is important. To protect the ewe and lamb from Clostridial diseases (eg Pulpy Kidney) fully vaccinate the ewes (two vaccinations – an initial and a booster) approximately 4 weeks prior to lambing. With cereal grains (especially wheat and barley) containing high levels of starch ewes must be introduced slowly to the grains over a period of 10-14 days to minimise the risk of acidosis. Calcium deficiencies apparent due to the high level of cereal grain being fed may be overcome by the addition of 1–2% of ground limestone to the diet.

Ewes poorly fed in late pregnancy are slower to reach full colostrum and milk production due to reduced mammary gland growth and have a lower total milk production over their entire lactation. Their lambs are born with lower energy reserves (internal fat) and are more prone to starvation and exposure. Ewe lambs that are born to ewes poorly fed during pregnancy generally produce fewer lambs and inferior wool in their productive life time than those from ewes well fed throughout pregnancy.

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- The Genstock system utilizes real-time ultrasonic scanning, allowing visualization of the foetus and precise accuracy.
- Ease of through-put utilising a standing cradle.
- A drafting module is attached to the cradle, enabling the operator to separate the ewes as they are scanned to minimize handling and labour.
- Up to 4,000 ewes can be scanned in a day for single pregnancy diagnosis
- Up to 2,500 ewes can be scanned in a day for multiple pregnancy diagnosis
- Foetal aging to group ewes into earlier and later lambing groups

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NEW TECHNOLOGIES

At the Australian Embryo Transfer Society conference held at the Gold Coast last August, a new technology has perhaps given us an explanation for the reason why there can be a marked difference between pregnancy rates and different sires at the time of LAI. It could also explain why certain rams achieve lower pregnancy rates through Embryo transfer programs.

WHY PREGNANCY SCAN?

1. **Management:** - By removing dry ewes from the flock it will ensure that all supplementary feed is being utilized by the pregnant ewes. Dry ewes can be sold, remated, or run on a lower plane of nutrition.
2. **Increasing lambing %'s over longer term:** - By removing barren ewes from the flock and only keeping ewes that regularly conceive and rear a lamb, a steady increase in overall lambing percentages will occur.
3. **Foetal aging:** - It is now possible to age the foetus and split the pregnant ewes into early and late lambers. This enables more condensed lambing to ease management of feeding and subsequent lamb marking. This is a specialized task that requires an experienced scanning operator.
4. **Multiple pregnancy diagnosis:** - We have a steadily increasing demand for multiple pregnancy diagnosis. Clients who have been utilizing this service, coupled with correct management have seen a marked increase in overall lambing percentages.

Multiple birth scanning can only occur between 45 and 95 days of pregnancy.

5. **Cost effectiveness** to increase your gross margins and profitability:-
For the outlay of \$0.35c / head for pregnancy scanning, assuming lambs are worth \$50 / head; lambing percentages only need to be increased by 0.7% to cover the cost of the scanning. If an increase in lambing percentage of 5% is achieved a return on outlay of 700% is possible!!!

Sperm Chromatin Structure and Relationship to Embryonic Survival:-

Early embryonic mortality is generally considered to result from "female factor infertility". There is however, growing evidence to suggest that the status sperm chromatin (DNA) at the time of fertilisation can also influence embryonic survival.

A range of techniques can be used to assess chromatin status in sperm, and of particular interest is the "sperm chromatin structure assay" (SCSA). A relationship has been found between SCSA and the likelihood of ongoing embryonic development after fertilization. Early embryonic mortality can therefore be a consequence of "Male factor infertility".

Interestingly, SCSA appears not to predict whether sperm can achieve fertilization but rather if embryonic development will be ongoing.

The only limiting factor is that SCSA testing is currently very expensive, and machine availability to our industry is cost prohibitive. However, like a lot of new technologies once the research evidence is proven, commercial application could become a reality.

WEBSITE

As many of you are aware, we have now hit the modern age and gone "on-line" – please visit our website at www.genstock.com.au and give us any feedback on how you feel this service could be improved.

For \$100 / ram (GST excl.) you can advertise on-line, which is fantastic value for money, considering that the advert will stay on our web site indefinitely. Genstock does not take any commission on sales. If you have an existing website, we can link it to your advertised ram.

It is really easy, just call Julia and she will get you moving into the "new age".

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