Research title: Validation of remote based estrus detection techniques to bolster reproduction: Influences of ewe body temperature on (Luteinizing Hormone-LH & Estrone Sulphate-ES).

Principal Investigators

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Scope of Research

Initially to determine what sheep breeders wanted to enhance their business profitability as part of the Charles Sturt University (Masters of Agricultural Business Management course), twenty-five on farm visits were made in QLD, SA, NSW and VIC during 2015. Researchers discussed key points including feral animals, wool quality and disease management. However, most of those interviewed wanted to know how to get more ewes joined successfully. They understood that graziers could manipulate feed intake, condition scoring and worm burdens, but what they could not see (but wanted to know) is how the climate affected the ewe's hormone levels. This back ground information has been used to assist in defining this research project.

The objectives of this research project in 2015/2016 are through scientific analysis of quantitative field based trials and qualitative desktop study is to explain: what are the effects of internal body temperature and environmental temperature on ewes (Ovis Aries) on her key reproductive hormone levels (Luteinizing Hormone-LH & Estrone Sulphate-ES).

A combination of non-invasive hormone analysis will be quantified in this research project. The sample size for this research is 40 ewes (30 merinos and 10 dorper).

Each of the ewes selected and prepared for this research by their owner, are exceptional ewes for various traits – wool, meat, previous reproductive performance and potential reproductive performance. Each of the ewes may have 1 or a number of these exceptional traits. (Note: the dorpers do not have wool fibre but a medullated fibre.)

In November 2015, the first merino samples were collection during the AI / ET oestrus cycle. At time of collection of this faecal matter, each ewe will have their internal body temperature recorded. In early February 2016 all the November merino ewes will again be tested through

faecal collection that will provide robust repeatable data sets. The ewes will also be tested for internal body temperature also at this time.

Also in early February 2016 the dorper ewes will be tested through faecal collection that will provide robust repeatable data sets. The ewes will also be tested for internal body temperature also at this time.

Significantly by using merino and dorper ewes, we will determine if the hormone change is breed specific or species specific.

Furthermore, the initial field work results that show that the research hypothesis has merit.

This research also endeavours to further engage with forty selected farmers in this research trial through a survey and where possible more on farm visits. A questionnaire will be provided to participating growers and the results collated, analysed and form a key section of this research.

Therefore this work is worthy of exploring further to understand more about how stress on the Ovis Aries animal affects body temperature and early stage reproduction performance of hormone. It is expected that upon completion of the results that a research paper will be produced and published for the wider sheep industry and scientific community.

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