

INF2 Summary Sheet

Order of Events

- Sheep CRC Business Case submitted 26th October 2011 – Total Cost \$12.97 Million for 5 joinings commencing in 2012 and assessing ewe followers until 2019/20 (AWI share \$3.9 Million plus costs of \$900K = \$4.8 Million)
- Board paper presented to the SWC 16th of Nov 2011 – Not Recommended. SWC requests for details on benefits returned from INF1 work.
- Board rejects proposal on the 17th Nov 2011 as recommended by the SWC. Board members ask for private briefing from CRC on INF2.
- OOS Board Paper prepared and distributed to the Board 2nd of Dec 2011.
- James Rowe and Rob Banks present to Brian Van Rooyen, Meredith Sheil and Wal Merriman on the 6th of December
- Resubmitted project put up to the full Board (no SWC in Dec) on 13th of Dec 2011 – Total Cost \$1.14 million, Total Life 2011/12 to 2014/15 – Board resolved not to approve.
- Its worth noting that the above staging more than adequately demonstrates due process was adhered to and the Board handling of this item was thorough.
- The “Review of Performance” consultants have (since the June 1st meeting) reviewed the above process and staging and report favourably about it.

Reason for not Funding INF2

- The project failed to adequately demonstrate a bridge to a commercial outcome.
- There needs to be a consensus on the commercialisation of the outputs of the INF1 and acceptance of them by Industry before moving to immediately fund the INF2.
- The current cost of \$150 per animal genotyped is too high and there is limited evidence that the cost will fall to \$50 per animal as budgeted in the INF2 business case.
- The company’s view is that to achieve widespread commercial success of this project the costs of genotyping would need to be in the order of \$20.
- The INF2 potential benefits and outcomes were considered heavily weighted towards meat orientated traits.
- The adoption rate of ASBVs by the 760 active ram selling Merino Studs remains low (13-15%) and there are only moderate signs of this improving.
- The adoption rates in the business case for the INF2 appear to be much higher than the recent past suggest are likely and thus also the benefits to Industry.
- Evidence that the adoption of the current genetic technologies will increase significantly is needed to give confidence that the estimates in the business case can be obtained. There are widespread beliefs among many Stud Merino Breeders that there will be limited additional benefits for the Ram Breeding Industry or Commercial Woolgrowers from the INF1’s genomic enhanced ASBVs, let alone from the planned INF2 project.
- The INF2 project is long and very expensive. The predictions of increased accuracies from genomic enhanced ASBVs from the current INF1 are yet to be independently peer reviewed and their Industry impact assessed.
- On top of the request to fund the very long and expensive R&D INF2 project there are indications that the technology will also require even longer ongoing validation for the technology to remain relevant into the future. It is very unclear who will pay for this ongoing validation, how it will be managed, and the scientific and business need for it.
- The arguments for the ongoing validation at a stud level, is inconsistent with:
 - a) the logic of a single whole merino genomic association analysis currently being conducted in the Pilot Project 2 and
 - b) the increased accuracies in the INF2 business case from a whole of merino analysis. If ongoing validation is needed at the stud level then the logic suggests that there will need to be 4-5 or merino genomic association analysis sub groups which reduces the numbers in each analysis and the trait accuracy predictions in the business case.
- There has been almost no formal Industry assessment of the benefits of the INF1 and there has been almost no formal engagement with representatives of the Stud Merino Breeder Associations, yet the business case for the INF2 has ram breeders contributing \$1.8M over the five years. There are few Industry champions for the benefits of the INF1 let alone the INF2.
- There is limited commercial evidence that those breeders using the additional information from Australian Sheep Breeding Values have more profitable sheep than those who do not.
 - There are studs that are not members of MERINOSELECT that rank highly on the dollar indexes in the Merino Bloodline Performance results
 - The variation that exists between the Merino Bloodline Performance and MERINOSELECT indexes continues to send confused messages to breeders.

What we have funded to date in Genetics & Genomic (2001/2 to 2011/12) at a cost \$8.6 million & \$18 million respectively

Major Projects include

- Sheep Genetic Australia MerinoSelect contribution \$250,000. – Funded since 2005. Total AWI cost to date. \$3Mill Current annual
- SARDI demonstration flock contribution \$0. – Funded since 2001. Total AWI cost to date \$1.4Mill Current annual
- Staple Strength contribution \$120,000. – Funded since 2005 – Total AWI cost to date \$680,000. Current annual
- SheepGenomics “Falkiner” Project contribution \$0. – Funded since 2003 - Total AWI cost to date \$15Mill – Current annual
- Wether Trials contribution \$60,000. – Funded since 2004 – Total AWI cost to date \$590,000 Current annual
- Sire Evaluation contribution \$50,000. – Funded since 2003 – Total AWI cost to date \$830,000 Current annual
- QPlus Flock Trangie contribution \$0 – Funded since 2003 – Total AWI cost \$150,000 Current annual
- Visual Trait Score Guide \$30,000 - Funded since 2005 – Total Cost \$260,000 Current annual contribution
- Sheep CRC2 AWI approx. \$3M – Funded since 2007 to 2014 AWI committed \$10Mill, cost of INF to

Since 2001 AWI has invested approximately 15% of its on-farm R&D spend on genetics and genomics.

In addition to the above “genetics” and “genomics” categorised projects \$2.5Mill will be spent by June 30th 2012 on Breeding for Breech Strike Resistance trials

Future planned projects

- Literature review and assess of R&D gaps in early life and lifetime productivity – for 2012- Total Cost \$35,000
- Reconciliation of Indexes (produced by MerinoSelect and Merino Bloodline Trials) – for 2012-13 Total Cost \$60,000
- Literature review of past pigmented fibre breeding research and recent SNP outcomes and creation of extension information for 2012-13 Total Cost \$70,000

Issues AWI is keen to address in the Genetic/Genomics area and is seeking to develop research projects.

- Staple strength
- Reproductive efficiency/lamb survival – Improving the current 72- 75% merino averages
- Lifetime wool traits
- Past Research Flock data
- Feed efficiency
- Sheep Selection and Measuring rate of Genetic Gain.

One of the more interesting Proposals that is in the hands of AWI and under investigation to fund

- The genetics of lifetime productivity of Merino sheep
 - The key outcomes of the project are:
 - The main outcomes of the project would be to validate the correlations and accuracies between Post Weaning Measurements throughout lifetime long term adult measurements.
 - The project would also look at the effects of reproduction on traits such as fleece weight, FD and Body weight and how this effects the accuracies of these traits over a range of blood types and breeding philosophies.
 - The project will also validate Genomics ASBV’s and their accuracies against lifetime measurement data.
 - The project also has scope to incorporate other smaller projects such as DNA testing for the staple strength and pedigree etc.
- Basic design elements:
 - Extend joinings at two Sire Evaluation sites to 2000 ewes, joined in total to 20 sires (100 ewes per sire).
 - Join 1000 ewes of each type.(SRS and main stream). 50 ewes allocated to a sire from each group.
 - The 2,000 ewes joined will only be joined twice over two years and then can be re-sold.

- The ewe PROGENY of the 2,000 ewes will be kept, which may be approx. 750- 800 ewes/year resulting in 1600 progeny over the two initial joinings.
- Progeny to be evaluated for 5 years, including at the post weaning age.
- Join and evaluate the ewe progeny for 3 matings.
- Record conception, birth type and rear type.
- Pedigree to be recorded, preferably using DNA pedigree testing.
- F2 progeny will be mothered through PMM and body weighed at weaning and then slaughtered
- The trial should be run at two sites –(medium and fine wool sites, e.g., low and high rainfall.)
- A broad cross section of sires need to be selected from the different types within the Merino industry.
- Other smaller trials for research can be incorporated into this trial as well.