ISSUE 5 ▶ APRIL 2006

A FEW SELECTED LINES

NEWSLETTER OF THE TRANGIE QPLU$ PROJECT

IN THIS ISSUE...

TRANGIE QPLU$ MERINOS

We welcome your enquiries and feedback related to the Trangie QPLU$ Project and this Newsletter. Depending on the nature of your questions/comments please contact one of the following people involved in the Project.

Pat Taylor (Livestock Research Officer)
Orange Agricultural Institute

Sue Mortimer (Livestock Research Officer) &
Tracie Bird Gardiner (Project Officer)
Trangie Agricultural Research Centre

NSW DEPARTMENT OF PRIMARY INDUSTRIES

• australian wool innovation • limited

Welcome to the new look A Few Selected Lines. We are pleased to be able to return after a period without the newsletter with some excellent news.

- **This years Qplu$ Open Day is set for Thursday May 11 at Trangie Agricultural Research Centre and will include a display of over 1,300 sheep drafted into their lines. The final results of 10 years of selection will be presented together with a booklet documenting the results. The program for the Open Day is on the last page of this newsletter.**
- Funding has been provided by AWI to complete wool quality and production measurements and data analyses for the latest drops of the Qplu$ selection lines.
- We are also pleased to report that Mrs Tracie Bird-Gardiner has been appointed to the position of Project Officer Merino Breeding to assist with research and communication activities associated with the project. Tracie has worked in various roles within the Merino industry during the past 15 years, most recently as a Technical Officer at Trangie.

REAPING THE REWARDS OF THE QPLU$ PROJECT

Australian Wool Innovations (AWI) has provided welcome financial support to enable a comprehensive evaluation of the final (2004) drop of progeny resulting from 10 years of selection and the lifetime performance of the adult ewe flock of each selection line. The key findings of the research will be communicated to the Merino industry over the next two years and will greatly assist ram breeders and woolgrowers in terms of future breeding objectives and optimal selection strategies to maximise profits from their flocks.

The specific objectives of the project are:

- To measure and demonstrate the improvements in fleece weight and fibre diameter achieved after 10 years of selection and to reaffirm that simultaneous selection can deliver substantial and predictable improvements in both traits in hogget and adult sheep.
- To measure and report correlated responses in other fleece characteristics that influence processing performance and wool prices and other components of on-farm productivity including net reproduction and carcass characteristics.
- To determine the impact of the above responses on profitability per hectare under a range of market scenarios and flock production levels.

Contact: Pat Taylor, Orange Agricultural Institute, Forest Rd Orange 2823.

Ph: 0263 913 916,

Email: pat.taylor@dpi.nsw.gov

CONTINUING IMPROVEMENT IN THE QPLU$ SELECTION LINES.

Improvements in fleece weight, fibre diameter and fleece value for the 2003 drop of each Qplu$ selection line are given in the table below.

Response to selection in the 2003 drop of each Qplu$ selection line

STRAIN	SELECTION LINE	CLEAN FLEECE WEIGHT (%)	MEAN FIBRE DIAMETER (µm)	FLEECE VALUE PER HEAD* ($)	INCREASE IN 2003 DROP ($)
FINE WOOL	Base flock	3.5 kg	19.7	33.85	-
	8%	13.7	-1.3	51.40	17.55
MEDIUM PEPPIN	Base flock	4.4 kg	20.8	37.49	-
	Industry	13.4	-0.7	45.65	8.16
	3%	16.7	-0.3	44.52	7.03
	8%	13.9	-1.2	49.20	11.71
	15%	5.1	-2.2	56.07	18.58
BROAD WOOL	Base flock	5.0 kg	23.2	40.15	-
	8%	9.9	-1.4	44.94	4.79

*Based on wool prices 2001–2005 inclusive

The progeny of the ninth selected mating of the Qplu$ selection lines continue to demonstrate steady improvements in fleece weight and fibre diameter compared to the base flocks from which they were bred. These improvements have resulted in moderate to large increases in the average value of fleeces produced within the selection lines of each strain.

Across the three strains, the 8% index lines (ie equal selection emphasis fleece weight and fibre diameter) demonstrate reductions in mean fibre diameter of 1.2 – 1.4 µm with improvements in clean fleece weight of around 10 – 14%. These changes have resulted in increases in fleece value that range from $4.79 per head for the broad wool line, through $11.71 per head for the Medium Peppin line to $17.55 for the Fine line. Although the responses to selection in fleece weight and fibre diameter were similar in all three strains, the large range in fleece values has been determined primarily by the premiums paid for mean fibre diameter from 2001-2005.

Among the remaining medium Peppin lines, responses in fleece weight and fibre diameter are in line with predetermined breeding objectives. The 3% line (ie increase fleece weight, maintain diameter) shows the largest increase in fleece weight (16.7%) and smallest reduction in fibre diameter (-0.3µm) while the 15% line (ie reduce diameter, maintain fleece weight) shows the largest reduction in diameter (-2.2µm) and smallest increase in fleece weight (5.1%). The Industry selected line, in which selection was imposed on classer assessed fleece quality, physical conformation and measured fleece weight and fibre diameter also shows large improvements in fleece weight (13.4%) and fibre diameter (-0.7µm). These changes have increased fleece values by $7.03, $18.58 and $8.16 respectively.

To see the latest results and the sheep from the final (2004) drop of ewes and rams bred within the selection lines see the last section of this newsletter for full details of this year's Qplu$ Open Day to be held on May 11 starting at 9.30am.

Contact: Dr Sue Mortimer, Agricultural Research Centre Trangie, Trangie 2823.

Ph: 6880 8008,
Email: sue.mortimer@dpi.nsw.gov.au.

QPLU$ DATA CONTRIBUTES TO GENETICS STUDY OF VISUAL TRAITS

A new project funded by Australian Wool Innovation (AWI) will use data on visually assessed traits collected from the QPLU$ flock at Trangie and resource flocks elsewhere to assist in the incorporation of visual traits into the national genetic evaluation service, Sheep Genetics Australia. The project is planned to also use data from the Merino Selection Demonstration Flocks managed by SARDI, CSIRO Fine Wool flock and Central Test Sire Evaluation flocks.

The aim of the project is to estimate genetic parameters for defined visual traits, including their relationships with important measured traits, from data currently available from Merino genetic resource flocks. The genetic parameters will be initially estimated for visual traits that are relevant to the industry and assessed to be of economic value, important for productivity or contribute to production costs. With the availability of genetic parameters for visual traits, Australian Sheep Breeding Values™ then could be produced by Sheep Genetics Australia and allow visual traits to be included formally into genetic evaluation programs used in the sheep industry.

Contact: Dr Sue Mortimer, Agricultural Research Centre Trangie, Trangie 2823.

Ph: 6880 8008,
Email: sue.mortimer@dpi.nsw.gov.au.

ESTABLISHING THE RELATIONSHIP BETWEEN MEAT AND WOOL TRAITS IN MERINOS

There is growing interest by some Merino breeders in improving the genetic merit of their flocks for meat traits, but the impact of this must be established on other measured and visually assessed traits associated with production of quality wool over an animal's lifetime.

A project to establish the genetic parameters for meat traits in Merino sheep is in its final stages. The project is funded by Meat & Livestock Australia under the supervision of Dr David Hopkins (NSW DPI, Centre for Sheep Meat Development, Cowra). The project utilises rams from the QPLU$ project run by NSW DPI scientists Drs Sue Mortimer, Kevin Atkins and Pat Taylor at Trangie Agricultural Research Centre. The specific objectives of the project are to;

- Enhance the precision of genetic parameters for meat quality and carcass traits, for incorporation into genetic evaluation systems used by Merino ram breeders.
- Develop an expanded set of genetic parameter estimates, which will include relationships between meat and wool production and quality and reproduction traits.
- Demonstrate the responses in carcass and meat quality traits and meat value to selection on a range of Merino wool breeding objectives in a range of Merino strains.

To achieve these objectives the project has been primarily focussing on the ram progeny generated in the QPLU$ project. Each year 72 Merino sires (8 sires per selection line) are single sire mated to Merino ewes within each of the 9 selection lines across Fine, Medium and Broad wool types of Merino. The base flocks were established within each strain back in 1993-1994 and selection within line has continued since commencement in 1995 with specific objectives for each line. This has meant that there is a range of Merino sheep available for the MLA project.

The rams are ultrasonically scanned at ~10 months of age to measure fat depth and muscle dimensions (as per LAMBPLAN), then at 19-20 months of age the rams are slaughtered and carcass and meat quality measures taken. These include fat depth, muscle dimensions, muscle colour and pH. To ensure that nutrition and pre-slaughter stress do not inflate measures such as muscle pH the rams are fed a pelleted ration for 5 weeks before slaughter. Equally because Merinos tend to be inherently lean the pellets help to ensure that the rams have some subcutaneous fat so the depth of fat can be measured with confidence.

The 4 year project aims to collect data on ~2000 rams. At completion the data will enable the effect on meat traits of selecting for wool traits to be determined. Ultimately this will lead to more robust selection indices.

Contact: Dr David Hopkins, NSW DPI Cowra,

Phone 02 63 49 9722
Email: David.Hopkins@dpi.nsw.gov.au

TRANGIE EXPERIENCE WITH E-TAGS

Radio Frequency ear tags have been used in the Trangie sheep flock since 1998. Since that time we have continually refined the system to get to a point where I think it is now working as well as it can at this point in time.

A couple of observations to come out of our experiences regarding real positives with using such a system have been as follows:

- Labour savings have been fantastic with each measurement job requiring at least one less labour unit and in some cases using panel readers in auto-drafting equipment up to three less labour units.
- Safer working conditions for both animals and operators with no need to wrestle animals in order to identify them.
- Less time required for measurement events. In most of our research measurement events tag reading was quite time consuming. E-tags reduced time required to complete measurement events by up to one third.
- Tag reading errors are eliminated. We used to get 3 to 5% tag reading errors at every measurement event using visual tags. This is totally eliminated using e-tags.

  However, our experience has shown that doing a few simple things correctly can help to get the most benefit from an e-tag system.
- Tag placement is essential for good retention. To close to the ear tip and the tag can catch and pull out while to close to the head can lead to healing problems and the tag falling out or being hit by shearers. Ideally a tag should be placed in the centre of the ear just before it starts to thicken as shown in the following picture.
- Put tags in ***near*** side ear if possible as it is easier for a right handed shearer to miss hitting it there. Also speak to shearers about the need to miss the tags and most will take greater care in the tag area.
- Don't put tags in before weaning as any earlier lamb losses mean tag losses.

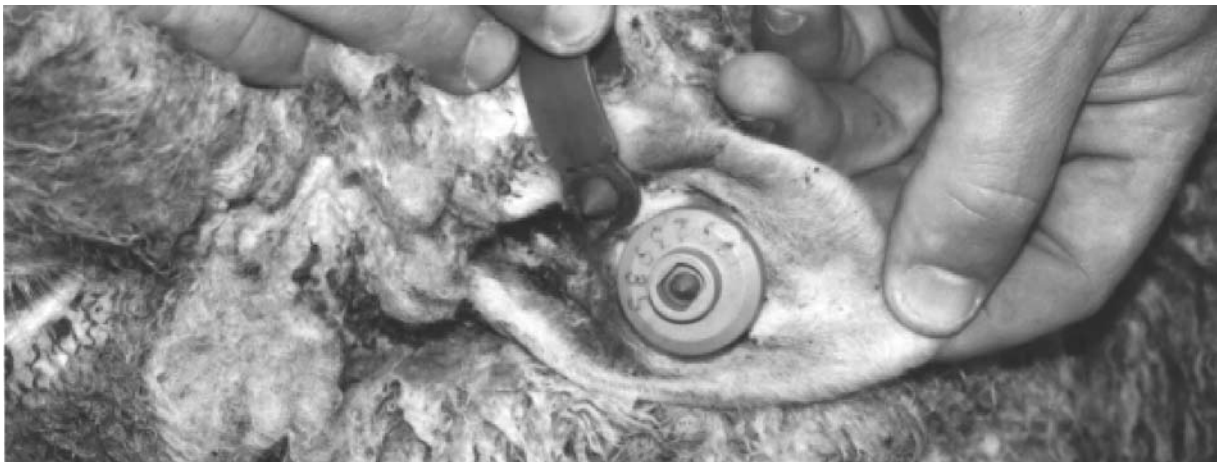
E-tags are recyclable which means that the cost of tags can be spread over several uses. At Trangie tag failure in e-tags has been negligible up until this year. This year we have had about 1% tag failure compared with about 0.05% in the past. While many of these tags have been used in 6 different sheep this still isn't too bad.

As we have a record of the past use of each tag in or database we will be able to to analyse history of tags and hopefully identify common reasons for failure (ie Is it due to the number of uses, all having been in rams or some other cause?).

In finishing I'm sure that once you have experienced using e-tags for sheep management, you won't want to go back.

Contact: Bill Murray, Agricultural Research Centre Trangie, Trangie 2823.

Ph: 6880 8050,
Email: bill.murray@dpi.nsw.gov.au



GENETIC RESEARCH ON DISPLAY – 2006 FIELD DAY.

The QPLU$ project will host an Open Day including the latest results and display of the sheep which capture 10 years of genetic selection research at Trangie Agricultural Research Centre on Thursday 11th May 2006. The

Over 1300 sheep from the QPLU$ flock will be displayed in their selection lines. Sheep producers will be able to see and handle the results of 10 years of genetic selection and receive a first-hand account from researchers and respected industry classers of how the selection was undertaken and the results that were achieved.

Each line will have a pen of mixed aged ewes and pen of 2004 drop ewes and rams. The results will be available so that sheep producers can get a hands-on understanding of the tools used in the project to produce each line of animals and how they can employ the technology in their own breeding programs.

We invite ram breeders and commercial breeders to join us at the field day to see the results and hear how the sheep were bred so that you can make informed decisions about implementing the strategies developed in the QPLU$ project.

A copy of the program for May 11 is attached.

For further information about the Field Day contact Edward Joshua 02 6880 8041 or 0428 285 987 or Tracie Bird-Gardiner 02 68 808 021

PROGRAM – TRANGIE QPLU$ OPEN DAY MAY 11, 2006

TIME		
9.30 am	Advertised start -Tea/coffee – Morning Session Chairman: *Ron Hacker*	
10.00 am	Merino Enterprise Outlook	Ian Rogan
10.30 am	QPLU$ Outcomes *Responses in fleece weight and fibre diameter 1995–2004*	Kevin Atkins
10.50 am	QPLU$ Outcomes *Correlated responses in wool quality and classer grade* *Correlated responses in carcass traits and feed intake* *Responses in fleece value*	Pat Taylor
11.30 am	QPLU$ Outcomes – understanding the selection process *Benefits and costs of improving selection accuracy*	Alex Russell
12.00 am	John William's Classing Strategy *interview of John Williams by Ian Evans* *sheep display near podium*	Ian Evans
12.30 pm	Lunch and inspection of the sheep within each selection line	
	Afternoon session chairman *Ian Rogan*	
1:45 pm	Conclusions from and future directions for the South Australian Selection Demonstration Flocks	Forbes Brien
2.15 pm	Sheep Genetics Australia in action – how sheep breeders can achieve their flock's breeding objective with the assistance of SGA	Allan Casey
2.45 pm	10 minute break	

TIME		
2:55 pm	Merino/Sheepmeat & Wool Balance - in the context of enterprise selection and performance *Comparative analysis of Gross Margins of various sheep enterprises, and enterprise risk/production risk/$ variability.*	Ashley White & Phil Graham
3.15 pm	Making the most from Selection in your Merino Business *Optimising flock structure to improve profit from current and future generations*	Jess Richards
3.35 pm	Closing Summary by Chairman and Question time	Ian Rogan
4.00 pm	Close	

TRANGIE QPLU$ MERINOS OPEN DAY , THURSDAY– MAY 11 2006

If you would like to attend please call Trangie Agricultural Research Centre and RSVP so we can cater for your needs – ph 02 6880 8000