



Sheep CRC Precision Sheep Management Information Sheets

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Sheep CRC – *Making the most of pedigree*

The Pedigree MatchMaker Service

The Pedigree MatchMaker Service is provided by Advanced Breeding Services - a consultancy service unit within NSW DPI. Advanced Breeding Services is a long-term service provider to the sheep industry specialising in breeding advice.

To obtain a Pedigree MatchMaker Service Report, you must provide:

- A file containing all dam RFIDs in the flock
- A file containing all lamb RFIDs in the flock
- File(s) containing the walkover raw data as downloaded from logger

Top tip:

Do not attempt to combine or manipulate the files!

Your report options

- 1 Standard pedigree:**
This option contains the pedigree matches with **high (1) and medium (2) level reliabilities**. High and medium level reliability has a single dam matched to each lamb, with a high level having a higher number of associations between the ewe and lamb than a medium level.
- 2 Additional pedigree:**
For additional cost, this option contains pedigree matches with **high (1) and medium (2) level reliabilities**, and also includes **low (3) reliability** matches. This will include the lambs that had multiple potential dams.

Report format:

A Pedigree MatchMaker Service can be reported in three formats.

- e-mailed as an .xls (excel) file
- e-mailed as a .csv/.txt file
- mailed as a printed bound report with hard cover

Cost:

Standard Pedigree MatchMaker (report option 1) Service \$40.

Additional pedigree (report option 2) an additional \$20.

Multiple Pedigree MatchMaker service \$25 each. If multiple services are required and submitted at the same time, you will receive a \$15 discount on each service. The first report is always \$40 but every additional report thereafter (if submitted together) is \$25.

Hard copy report \$15 (plus \$5 for each additional hard copy report).

*A small additional cost will be incurred if additional files are submitted and a group requires re-reporting. The cost will depend on the situation and will be confirmed prior.

**Where data is sent and it does not match the information supplied in the request form, an additional fee may be incurred.

For more information

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Making the most of pedigree

The majority of Merino breeding flocks have partial (sire only) or no record of pedigree. This is due in part to the labour intensive nature of collecting maternal pedigree (mothering-up) and the management of large numbers of individual records.

Pedigree MatchMaker offers an effective alternative method of collecting dam pedigree and when added to sire pedigree, adds substantially to the value of the information.

Having access to dam pedigree will:

- Improve the reliability of the information used to predict breeding values
- Allow accurate genetic comparison between animals over time
- Provide genetic links between flocks so across-flock evaluation is possible

Research undertaken on QPLUS\$ lines at Trangie, NSW, demonstrates:

- For males, including pedigree, improves selection accuracy by 11% - 16% when used with two-stage shearing records.
- For females, including pedigree, leads to a 19% - 21% improvement in selection accuracy.

Cost comparison:

- Pedigree MatchMaker
Cost - \$3-\$4 per lamb.
- Mothering up: The additional labour required to catch and tag each lamb at birth.
Cost - \$10-\$12 per lamb.
- DNA analysis: The cost of DNA testing the progeny at a later date.
Cost - \$30+ per lamb.

Pedigree MatchMaker is a walk by system with associated software that uses animal RFID data to estimate association between dams and their lambs, and ultimately provide an accurate pedigree match.

Predicting pedigree

The process of determining pedigree by association involves recording a time-ordered sequence of tags as the animals pass a reader and the parentage is predicted by observing the frequency of certain ewe and lamb associations/combinations. It is recommended that four to six weeks of recording is needed for predicting pedigree.

First week - 70-80% accuracy
Second week - 80-92% accuracy
Third week - 85-95% accuracy
Four to six weeks - 90-96% accuracy

The age of the lamb has little impact on obtaining accurate pedigree, neither does flock size in flocks of up to 200 ewes (and their lambs).

Statistical proof

Three trials were run in 2006 to test accuracy of pedigree by association using Pedigree MatchMaker software.

The trials were run at two sites in NSW with flocks of 96, 197 and 177 ewes and their lambs, and relied on recordings of both ewe and lamb RFID tags as they walked through a gateway leading to water.

Setting up:

Pedigree MatchMaker systems can be made to varying levels of complexity depending on how much labour is required and money spent.

Basic system

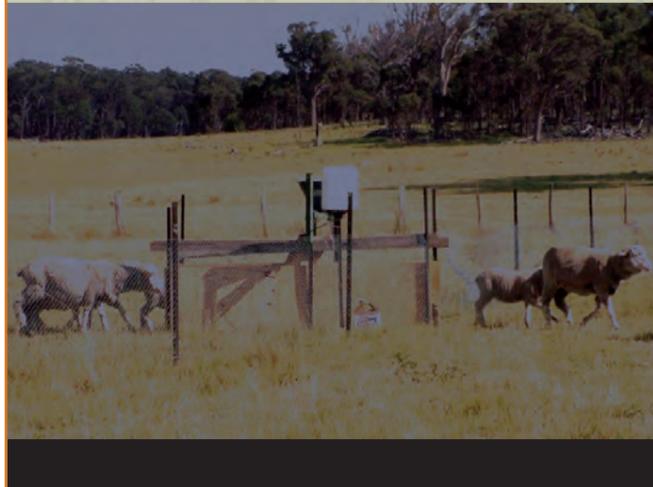
Equipment	- Data logger - Portal or panel reader - 1.5m race - Two 100amp hour deep cycle batteries minimum
Operation	- Batteries to be swapped every second day - Data downloaded manually once a week
Cost	- Approximately \$3500

Solar powered system

Equipment	- Same as basic system PLUS - Two 80 watt solar panels - Solar regulator
Operation	- Data downloaded manually once a week - Batteries do not need to be changed
Cost	- Approximately \$5500

Fully remote system

Equipment	- Same as solar powered system PLUS - Telemetry system
Operation	- Possible to handle the whole system remotely
Cost	- Approximately \$9500



To download data from the Allflex data logger:

1. Remove SD ram card from the inside of the data logger box.
2. Insert card in USB card reader and plug reader into computer.
3. Using Windows Explorer locate and copy the required files to your computer.
4. If required, delete files from the SD ram card to free space on the card, (ensuring files are correctly copied to the computer first).
5. Remove USB card reader from computer.
6. Remove SD ram card from card reader and re-insert into data logger.

The importance of training animals

In order for Pedigree MatchMaker to work, animals must be trained to use the system. It is possible and practical to build a system over a few days, giving the sheep time to gradually get used to the new equipment.

Stage 1

Build yards or fence an enclosure in a way that allows free access to water. When you are confident the sheep are all watering, introduce the next stage.

Stage 2

Gradually close the gap to restrict access and exit to the system. This can take up to three days. Do not progress until the sheep are freely entering and exiting the system.

Stage 3

Add the race without electronics turned on as noise may distract some animals.

Stage 4

Activate the system and collect data. Check the system is working and test tags.

Do's & Don'ts

Do

- Check the system after first day of operation to make sure system is correctly reading and storing tag numbers, date and time.
- Make sure ewes are trained well in advance of lambing.
- Create a non-threatening system for sheep movement.
- Allow sheep to find their own way through the system.
- Ensure there is a clear view through the race.
- Use supplementary feed or other attractant to entice sheep through the system.

Don't

- Force sheep through the system.
- Wait until the beginning of lambing to train sheep.