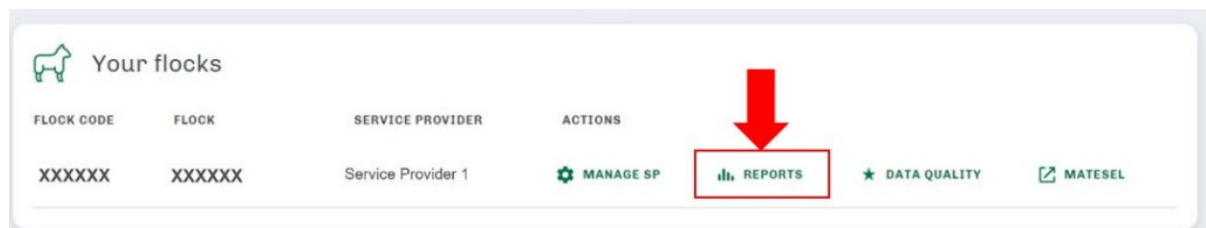# Genomic Pedigree Inconsistencies

Correct pedigree is important in the Sheep Genetics evaluation to underpin accurate ASBVs. Pedigree provides the analysis with information of the genes that an animal has inherited from their parents and what will be passed onto their progeny. Therefore, ensuring correct pedigree used in the Sheep Genetics analysis is highly important,

Genomic pedigree inconsistencies occur where the pedigree supplied by the breeder differs from the pedigree indicated by genomics. Sheep Genetics reports genomic pedigree inconsistencies and for breeders to review these and make the appropriate update.

Accessing and amending your genomic pedigree inconsistencies

Go to the Sheep Genetics search site - https://search.sheepgenetics.org.au/ and log in.

On the search site dashboard (the home page of the search site) scroll down to the tile titled 'Your flocks'. In this tile, click on 'REPORTS'. You will then be taken to your report's dashboard.

Within the report's dashboard, scroll down to the box labelled 'Genomics' - this tile displays a count of the pedigree inconsistencies. Click on 'Pedigree Genomics Inconsistencies report'. This will generate a table of animals impacted by a genomic pedigree inconsistency.
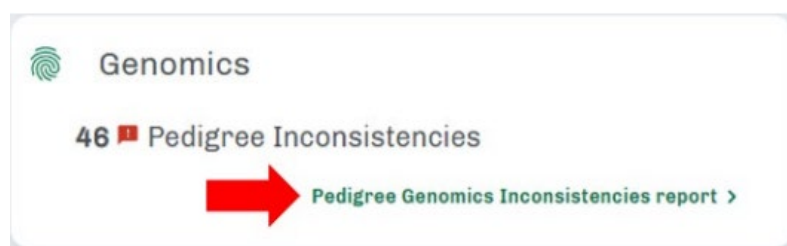
This report can be downloaded by clicking 'DOWNLOAD' and then either 'GENERATE PDF' or 'GENERATE CSV'.

Interpreting genomic pedigree inconsistencies

The below table is an example of a genomic pedigree inconsistency report:

ANIMALID	PEDIGREE TYPE	PEDIGREE SUPPLIED	INDICATED BY GENOMICS RESULTS
🔴 XXXXX-XXXX-XXXXXX	Dam	XXXXXX-XXXX-XXXXXX	XXXXXX-XXXX-XXXXXX
🔵 XXXXX-XXXX-XXXXXX	Dam		XXXXXX-XXXX-XXXXXX
🔵 XXXXX-XXXX-XXXXXX	Sire		XXXXXX-XXXX-XXXXXX
🟢 XXXXX-XXXX-XXXXXX	Dam	XXXXXX-XXXX-XXXXXX	
🟢 XXXXX-XXXX-XXXXXX	Dam	XXXXXX-XXXX-XXXXXX	

Column 1 (ANIMAL ID) is the animal impacted by the pedigree inconsistency (aka target animal).

Column 2 (PEDIGREE TYPE) is the parent with the pedigree inconsistency.

Column 3 (PEDIGREE SUPPLIED) is the pedigree provided by the breeder via their software, and it is the pedigree currently used in the analysis.

Column 4 (INDICATED BY GENOMICS RESULTS) is the suggested parent based on the genotype.

Scenario 1: As seen in row 1 (red) in above example, the pedigree supplied differs from the results indicated by genomics.

1. Check your data management software and mating/lambing records. If the inconsistency is valid update using steps 2 and 3.
2. Update the pedigree of target animal (ANIMAL ID) to the pedigree indicated by genomics results (where relevant) in your data management software.
3. When you have finished updating all animals in the genomic pedigree inconsistency report, export the relevant year drops and submit them to Sheep Genetics. Updating and submitting date to Sheep Genetics will amend the genomic pedigree inconsistencies. *Note: this change will be reflected on the genomic pedigree inconsistencies report AFTER the new data has been included in the next run. The update will not immediately appear*

Scenario 2: As seen in row 2 and 3 (blue) in above example, the pedigree supplied by the breeder is missing, meaning that no pedigree was supplied for the target animal in the analysis. However, a likely dam and sire has been identified within the genomic database and is reported in the indicated by genomics results column.

1. Update the pedigree of target animal (ANIMAL ID) to the pedigree indicated by genomics results in your data management software.
2. When you have finished updating all animals in the genomic pedigree inconsistency report, export the relevant year drops and submit them to Sheep Genetics.

Scenario 3: As seen in row 4 and 5 (green) in above example, pedigree has been supplied and according the genomic relationship between the target animal and the pedigree this is most likely not the correct parent based on genomic information. However, a true parent could not be found as it is likely not genotyped.

1. Double check your data management software and mating/lambing records and ensure you have supplied the correct pedigree (to the best of your knowledge) to Sheep Genetics.
   a. If not, update the pedigree in your data management software to the pedigree you have recorded.
   b. If so, genomics did not find a match between the supplied pedigree and any animal in the genomic database to be a probable pedigree option.
2. When you have finished updating all animals in the genomic pedigree inconsistency report, export the relevant year drops and submit them to Sheep Genetics.

DNA pipeline

The DNA pipeline is different for DNA parentage and 50K Genomics. Be aware of what you have ordered and what role you play in reporting the correct pedigree. For more information on genomics and the products/services available, please go to: https://www.sheepgenetics.org.au/resources/genomics/

DNA parentage   **50K Genomics**