

## Survival Module Update – Hogget exclusion

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### SIL Technical Note

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Subject: **Survival Module Update**  
Relates to: Survival, Hogget Reproduction  
Date: August 2023

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#### Summary

- A recent review showed survival of lambs to hoggets was not a useful predictor of lamb survival to ewes.
- The Survival module in the New Zealand Genetic Evaluation (NZGE) has been updated to exclude survival data for lambs born to hoggets.
- Survival estimation is based only on lambs born to two-tooth and older ewes from the NZGE extracted on Friday 28th July 2023.

#### Background

A recent review of Survival, comparing data from lambs born to hoggets with survival data from lambs born to older ewes, revealed that using data from hoggets adds no value to the survival prediction of lambs born to ewes. Additionally, it introduces some bias to the survival analysis. The data for lambs born to hoggets has been used in the survival module since SIL's inception.

The decision was made to restrict survival information to data on lambs born to two-tooth ewes and older, from the New Zealand Genetic Evaluation (NZGE) extracted on Friday 28 July 2023.

#### Reasons for changing survival data

- A recent review indicated that survival of lambs to hoggets does not serve as a useful predictor of lamb survival to ewes.
- There are significant management and environmental differences between hoggets and ewes which impact the lamb survival analysis:
  - Hoggets are immature and still in the growth phase of life.
  - Mating weight, growth trajectory over the pregnancy, feed levels, and birth weights differ from those of lambs from older ewes.
  - Hoggets often lamb at a different time than older ewes.
- The accuracy of hogget lambing data recording varies:
  - It is not uncommon to see only singles, only twins, no dries, no deaths, or very high death rates amongst lambs born to hoggets.

Previously, a ram’s survival was calculated from all lambs - so if there was very high survival in hoggets (often indicative of incomplete recording), or very low survival in hoggets, the sire’s survival merit value could vary considerably. The proportion of lambs born to hoggets versus lambs born to mixed age ewes also impacted the sire’s survival merit value.

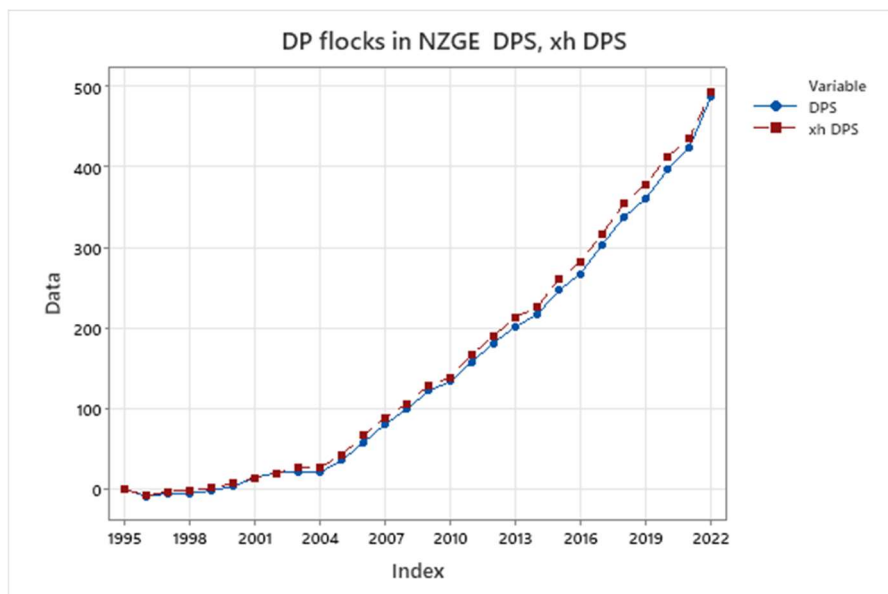
Overall response to removing ewe hogget data

Restricting the survival dataset to exclude survival data for lambs born to hoggets results in changes to some rams that have a lot of hogget data. Some changes are also observed for rams in flocks that do not practice hogget lambing but are connected in some way to rams that do.

For some, the changes are more significant, with a few rams experiencing a change of 500 cents for DPS, and a very small number changing by more than 1000 cents.

For most flocks, the changes will be minor, and the overall dual purpose genetic trend graph remains very similar – see below.

Fig 1: Genetic Trend Graph for Survival in all Dual-Purpose Flock



*Blue line = current DPS, Red line = hogget data excluded*

Fig 1 shows the updated DPS values will be a more accurate prediction of merit for Survival.