

# FE Star Ratings

## Rating individual animals for Facial Eczema Tolerance

### SIL Technical Note

Relates to: Evaluating individuals for Facial Eczema Tolerance

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#### Summary

- Flocks on SIL that are registered for the Ramguard service are given a Flock Status Rating depending on dose rates used in the flock.
- Individual animals can get a FE Star Rating for FE tolerance based on the dose rate they or their progeny were challenged with. Together with the GGT21 BV or the FE Tolerance sub-index (DPX) this is the best way to genetically rate animals from different backgrounds for FE Tolerance.
- Ramguard is the programme which co-ordinates the dose rates given to animals and provides a certificate to breeders each year verifying their part in the programme. Buyers are encouraged to ask for this information.

#### Background

Due to demand from both breeders and buyers, SIL has developed tools to better identify flocks and individual animals with FE tolerance. This document outlines these tools.

SIL characterizes genetic merit within flock with a breeding value, GGT21, or a sub-index (DPX) based on this. Comparison of animals from different flocks has previously been problematic. Test results are measured as levels of GGT 21 days after an animal is challenged with but the SIL genetic evaluation does not take account of the dose level of this challenge.

The new tools described here, together with the GGT21 BV or DPX index, allow more robust comparisons of animals from different flocks or backgrounds.

#### Ramguard Flock Status Rating

Each flock on RamGuard is assigned a Flock Status Rating based on the dose rate they currently test at. Dose rate is affected by number of years a flock has been testing and the extent to which sheep tested each year react. Flock Status Ratings are shown in Table 1. They were derived in consultation with Ramguard and breeders using the service. A list of flocks with Flock Status ratings can be found at [www.sil.co.nz](http://www.sil.co.nz) under “Buying rams”.

**NB: Flock Status Rating is related to, but not the same as, the FE Star ratings described below.**

#### Individual animal FE Star ratings

SIL has two attributes to help report on genetic merit for FE Tolerance for individual animals – ratings for themselves (FE Star) or their progeny (FE Star progeny).

The FE Star rating is based on individual trait data for ‘DOSE’, the challenge the animal was given (see Table 1). If an animal was not artificially challenged, but a GGT21 value exists, it is called a field challenge (FC). Only animals with a GGT21 value get a FE Star rating.

If an individual reacts to a dose rate, this is shown as '-' instead of '\*' after the dose level e.g. '4-'. A reactor has a GGT21 value 1.5 times greater than GGTB (GGT before dosing). A field challenge reactor result is defined as a GGT21 value greater than 100.

FE Star Progeny can be used on a Sire Summary to show reactor status of a sire's progeny. The sire itself may not have been tested. For FE Star Progeny, '-' means more than half his progeny reacted to that level of challenge. No result for FE Star Progeny will be shown if no progeny have GGT21 data. Progeny in different years or flocks may have different dose rates. SIL shows all variations e.g. 2\*\3\*\4- (see Table 2).

### Genetic merit for FE Tolerance

SIL predicts breeding value (BV) for FE Tolerance using information collected for GGT in the blood before challenge and 21 days after challenge. Low levels of GGT21 are best so better BV values are more negative.

SIL uses the performance of relatives in genetic evaluations. So genetic merit for FE tolerance can be predicted for sheep not tested themselves AND an animal's GGT21 BV is influenced by challenge data from its relatives.

SIL has a Facial Eczema sub-index, DPX. This is simply the GGT21 BV multiplied by its economic weighting. It shows the impact Facial Eczema Tolerance has on overall economic merit. Units for the index are "cents per ewe lambing" with larger, positive values better.

The facial eczema sub-index is included in the DPO index as DPX. It is not included in the DPP index (Dual Purpose Production index) which does not include health traits.

### **SIL recommendations**

- Rate flocks for general FE Tolerance using the Flock Status Rating. Lists of flocks rated for this are available on the SIL website ([www.sil.co.nz](http://www.sil.co.nz)) under "Buying Rams"
- Individual animals be rated using **FE Star** or **FE Star Progeny** ratings together with either the FE Tolerance sub-index, DPX or GGT21 BV.
- Number of progeny with GGT21 data (nGGT21) be used with FE Star Progeny, BV and index figures to assess how much information is behind these figures

### Need more information?

SIL has more information about breeding for FE Tolerance on its website under "Technical Information" and "Buying Rams". Alternatively, contact your SIL bureau, send an email to [silhelp@sheepimprovement.co.nz](mailto:silhelp@sheepimprovement.co.nz) or telephone 0800-745-435 (**0800-SIL-HELP**).

Table 1. Links for Flock Status Rating and individual animal Star Rating with Ramguard challenge dose rates.

Ramguard Dose rate mg/kg LW	FLOCK	INDIVIDUAL ANIMAL	
	Status Rating	Star rating	Reactor Status
<0.20	*	1*	1-
0.20-0.29	**	2*	2-
0.30-0.49	***	3*	3-
0.50-0.60	****	4*	4-
>0.60	*****	5*	5-
Field or natural challenge	N/A	FC	fc-

Table 2. FE Star Progeny result examples

3*\4*	less than half of progeny reacted at dose levels 3 & 4
2-\3-	more than half of progeny reacted at the dose levels 2 & 3
4-\FC	more than half of progeny reacted at dose level 4 but less than half reacted with a Field Challenge
2*\3*\4-	less than half of progeny reacted at dose levels 2 & 3 but more than half reacted at dose level 4