

# Dag Score

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## SIL Technical Note

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Relates to: Selection to reduce dagginess

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### Summary

Dags are a significant cost to sheep farmers. A variety of environmental factors can lead to sheep scouring and dags forming on the wool on their backsides.

Genetic selection can reduce the incidence of dags in a flock. SIL offers sheep breeders a simple scoring system combined with an advanced genetic evaluation system, to most accurately predict genetic merit for dagginess.

### Background

Dags are a significant cost to sheep farmers. Both through the cost of dagging and through the reduced value of associated wool.

Dagginess is a complex trait. A variety of environmental factors can lead to sheep scouring and dags forming on the wool of their backsides. These include, changes in feed, internal parasites, ryegrass staggers and mineral imbalances. It is thought that some sheep have a more sensitive gut and such effects trigger scouring more readily so they become daggy.

This is borne out by practical observations of breeders and scientific studies that show that there is a genetic predisposition to dagginess. Sheep that are daggy are more likely to have relatives that are also daggy than sheep that are not.

Rather than worry about the reason for dagginess (or dags), some farmers have adopted the philosophy of selecting or culling sheep on the basis of dags in order to reduce the problem in their flock in the long-term.

SIL offers the means to reduce incidence of dags through genetic selection. Using dag scores assessed on young replacement stock, and the pedigrees SIL holds for the flock these sheep are from, SIL can predict the most accurate measure of genetic merit for dagginess in these sheep and their relatives. This information is incorporated into SIL indexes for overall economic merit with an appropriate economic weighting for the impact it has on overall profit compared to other traits.

### Genetics of resistance

Dagginess is moderately heritable at about 30%. There is only a weak genetic relationship with major production traits. So selection to reduce dags will have little impact on the response to selection for productive traits.

However, it is one more trait to select for which makes it harder for a sheep to be good at everything. So there will be some sheep that are good all round sheep but genetically prone to dagginess and others with low propensity to dagginess but weak in one or more other traits. Fortunately there will also be sheep that are highly productive WITH low propensity to dagginess.

### Selecting for reduced dag score

Basically, animals are assessed for dag score under common conditions just after weaning (DAG3) and later in the autumn (DAG8). This information is used to predict genetic merit of each sheep for dag score.

### Recording Dag Score data

*The Dag Score scale* – SIL uses a scoring system similar to the diagram below. This shows a 6-point scale ranging from 0 (no dags) to 5 (very daggy). However, smaller scales can be used e.g. a 4-point scale from 0 to 3 is fine to use. The key is to be consistent when scoring a mob of sheep and for these sheep to have been run under similar conditions. You can see that the example Dag Score scale given below really just shows the degree or extent of faecal contamination of the fleece. This should not be confused with urine stain in ewe lambs and hoggets.

The best way to achieve consistency is practice! Use of a diagram to help you do so when you are gaining experience is recommended. Do not be unduly worried about variation in the way the scores are applied between years or between flocks. During the genetic evaluation SIL will remove the effects of differences between years and flocks.

*Contemporary group* – What SIL does need to know is what differences there are between groups of animals that are Dag Scored within a year. These may be due to different management (mobs) or a different operator scoring them for dagginess. We identify this by assigning animals to different groups. You can think of them as “mobs” on the basis of whether they were run together, or not, during the period when dags developed, on whether some sheep were crutched or drenched while some were not, and on the basis of who performed the dag score. If you are unsure how to code the data in the best way, speak to your SIL bureau.

*When to collect data* – SIL can use two scores of dagginess to predict genetic merit for Dag Score. You do not have to record both but the accuracy is lower if you record only one. The first score is collected soon after weaning (DAG3), and the second in the autumn (DAG8). Typically lambs have NOT been crutched prior to DAG3, while they are crutched after that and well before DAG8 data is collected.

*The effect of drenching* – Animals can scour for many reasons other than internal parasites. There is no need to avoid drenching in order to seriously challenge sheep to scour. However, in order to get the best discrimination for genetic merit for Dag Score, we should aim to get 30-40% of sheep with a Dag Score greater than zero. Any less will make it harder to discriminate the sheep less prone to dags from those more prone to dags. You can crutch and drench sheep after scoring them.

### Genetic evaluation

SIL predicts breeding valueS (BV) for Dag Score from the DAG3 and DAG8 measurements that breeders record. These are lamb dag score (LDAG BV) and adult dag score (ADAG BV). A high value for these BVs shows a genetic predisposition to have dags. So more negative values are better.

SIL uses the performance of relatives in genetic evaluations. So genetic merit for Dag Score can be predicted for sheep that have not been tested themselves AND an animal's BVs are influenced by the performance of it's relatives.

### Reporting on Dag Score

SIL recommends the use of the Dag Score sub-index, rather than the BVs, on reports. This is simply the Dag Score BVs multiplied by their economic weights. It has the advantage of showing how much impact Dag Score has on the overall index of economic merit. The units

for these indexes are the same – cents per ewe lambing – and in all cases, larger, positive values are better.

This recommendation is made to help make reports easier to understand for ram-buyers. They can see easily which animals are more resistant to dagginess and how this relates to advantages an animal has in other traits.

The economic weights that SIL uses for Dag Score are based on the costs of crutching sheep and the reduced value of daggy wool. Consequently they are negative weights. So higher dag scores give a lower index value.

#### Dag score versus resistance to internal parasites

Dag score economic weights DO NOT take account of costs associated with internal parasites. Breeders wishing to address parasite resistance should consider using the WormFEC sub-index based on faecal egg counts (FEC) to address this. The Dag Score and WormFEC sub-indexes are independent so they can be used in the same genetic selection programme and the same overall index.

Dag score is a useful trait when selecting for parasite tolerance or resilience. A separate technical note addresses this in more detail. To summarise, if you want to select for parasite tolerance (or resilience), you should select for production traits (some or all of Growth, Wool, Meat, Reproduction and Survival), together with selecting to reduce both faecal egg counts and dag score.

#### Need more information?

Contact your SIL bureau, local SIL adviser or call 0800-745-435 (0800-SIL-HELP).

#### SIL Dag Score chart

*Use this chart for scoring sheep for dags. Note that zero is for “no dags” while 5 is for most daggy. You can use fewer scores but SIL does not recommend using less than a four point scale (zero plus 3 grades of dagginess).*

## SIL Dag Score Scale

