Mid-micron sheep indexes

SIL Technical Note

Relates to: Selection to improve mid-micron woolled sheep
Written by: Mark Young & Georgie Walker
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Summary
Wool quality can be directly addressed in the selection indexes offered by SIL for mid-micron sheep. Based on the SIL Dual-Purpose indexes, SIL has derived sub-indexes for Wool and for Wool Quality specific to mid-micron sheep.

Account is taken of fibre diameter and its relationship with fleece weight in the main Wool sub-index. Another sub-index focuses on five other traits characterizing quality – variation in diameter, curvature, length, yellowness and brightness.

Either the SIL Dual Purpose or the SIL Mid-Micron indexes can be used for improvement of mid-micron sheep. The latter indexes allow a breeder or ram buyer to identify animals with superior wool quality. However the economic value of this is not great.

Background

Mid-micron sheep are generally run as a dual-purpose flock with income coming from lambs and from wool. SIL has a Dual-Purpose Overall (DPO) index for such sheep. It has proved to be a valuable tool for characterizing sheep for overall merit in a number of sheep breeds. The NZ Corriedale Society use this index very successfully to identify and promote the use of superior genetics through their GoldMark branding of rams for sale.

The DPO index characterizes genetic merit for wool solely in terms of fleece weight. A number of breeders have expressed concern about this even though quality traits receive only a small premium, at best, for mid-micron wool in the marketplace (the situation is worse in crossbred wools!). Only in fine wools are there more consistent market signals for wool quality.

SIL has reviewed indexes for Fine Wool sheep. Mid-micron sheep were included in this review. As a consequence, SIL now offers an index for Mid-Micron sheep with key wool quality traits included. This may not be needed by all buyers of rams, or by all breeders of Mid-Micron sheep. Many will continue to use the Dual-Purpose Overall indexes to good effect for genetic improvement of overall economic merit. SIL is happy to provide advice on what is best for your breeding programme or flock.

The Mid-Micron Overall Index

A variety of sub-indexes can be incorporated into the overall index. The table showing the available sub-indexes & their respective economic weightings for the Mid-Micron Overall index can be found in the document detailing SIL Indexes under Technical Notes – SIL Indexes on the SIL website. Not all sub-indexes need be chosen for inclusion in a genetic evaluation. Those chosen will be incorporated into the overall selection index SIL puts on reports.

There are three differences between the SIL Dual Purpose and the SIL Mid-Micron indexes. The first two differences are greatest and occur in the Wool and the Wool Quality sub-indexes. Most sub-indexes in the SIL Mid-Micron Overall index (Growth, Meat, Reproduction, Survival, WormFEC, Dag Score) are the same as those used in the SIL Dual-

Purpose Overall index. However, the third difference is that there are no Facial Eczema, Twinning Rate or Hogget Lambing sub-indexes in the Mid-Micron indexes.

Fibre diameter breeding value is included in the Mid-Micron Wool sub-index (MMW) with a negative, albeit small, economic weighting. While this will tend to favour finer-woolled sheep, the effect is expected to be small given the dominant effect of weight on fleece returns.

A new sub-index, Wool Quality (MMWQ), has been added to the Mid-Micron Overall index. This focuses on five key measures of wool quality related to processing and end-use, namely – coefficient of variation for fibre diameter, fibre curvature, fibre length, yellowness (Y-Z) and brightness (Y). There is no requirement to include the Wool Quality sub-index if you only want to use the main Mid-Micron Wool sub-index which includes fibre diameter.

A separate technical note describes the Wool and Wool Quality sub-indexes in more detail with reference to what needs to be measured and how to make most effective use of them.

Recording Wool Quality data

If the Wool Quality sub-index is to be used effectively, a reasonable number of sheep should have wool samples tested for quality traits. Otherwise there will be poor discrimination between sheep for genetic merit of these traits. You should consider testing the top 15% or the top 30 ram lambs/ hoggets, whichever is the greater number. SIL can advise on doing this effectively.

Reporting on Wool and Wool quality

The main Wool sub-index includes breeding values for fibre diameter and fleece weight. This will reward finer fleeces relative to stronger fleeces of the same weight. As experienced breeders will know, there is a tension between fleece weight and fibre diameter whereby finer fleeces tend to be lighter. However, the new Mid-Micron Wool (MMW) sub-index will put appropriate economic weighting on these traits to improve fleece returns.

Due to market signals for wool price, the MMQ index does NOT have a large effect in the overall index (MMO). However, it offers the means to monitor key traits affecting wool quality as part of a breeding programme and it will identify animals with superior wool quality.

SIL recommends the use of sub-indexes, rather than BVs, on reports. This has the advantage of showing how much impact each trait has on the overall index in terms of economic merit. 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 which animals are superior and how this relates to advantages an animal has in other traits.

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