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INDEX CALCULATION

Ever since sheep were domesticated shepherds have been trying to select breeding animals that will have progeny that are bigger and better. Unfortunately, some selection decisions have been made on non-productive traits that are only pleasing to the sheep breeder's vision of what the animal should look like. Therefore all breeding decisions were based on visually identifiable traits only.

If the Sheep Breeder uses visual selection only, it can be very helpful with some aspects of genetic decision making, but visual selection has two problems that limit the Sheep Breeder's ability to select the best animal for their flock. Firstly many factors such as reproductive potential, maternal factors and parasite resistance are not visually identifiable. Secondly, phenotype is a combination of the animal's genetics (genotype) and the environment in which the animal lives; therefore what you see is not always what you get.

Animal scientists have developed a method that provides the Estimated Breeding Value (EBV) of an animal for a particular trait based on the animal's performance data, its genetic history and the environment in which it was reared. EBV is an estimate of the amount of genetic merit that an animal is likely to pass on to its offspring. For example if a Sheep Breeder has two Rams to breed with and one Ram has 2Kg better GFW than the other.

Now published heritability estimates tell us that only 35% of that superiority is likely to be genetic. Thus, we estimate his breeding value = 35% *2Kg= 0.7Kg = EBV for GFW

We know that he will pass on only half of his genes to his offspring as the other half comes from the dam. His progeny, we expect to receive on average half that amount and therefore to have fleeces 0.35Kg heavier than those sired by the average ram. An EBV is quoted for an animal based on a comparison to its peers that are those animals born in the same flock at roughly the same time and exposed to the same environment from birth to the age at which measurements are made (typically 1 to 1.5 years for sheep).

Micron Man Indexes provided are across flock calculations related to all sample results for the mob that the client wants tested. Every EBV is calculated using the average result as a benchmark. If an animal has a GFW cut the same as the average, then generally the GFW EBV will be around zero. This can vary because results from other traits can possibly also indirectly affect the GFW EBV, but by a small amount.

The final part of the calculation is to combine the animals EBV with the Relative Economic Value (REV). The REVs are putting a dollar value to each EBV in relation to the overall improvement or

reduction of each trait. A simple addition of each EBV*REV for each trait measured results in the overall Index value for the Index selected.

Micron Man have many variations on the standard 3 basic Indexes provided. The original Index was called the Economic Index and has about 12 options available while the Merinotech Index is similar, and the AMS Index can now be variably geared to the clients wishes.

In practice, using the results from an Index along with visual appraisal can rapidly improve the value of a flock. Fibre Diameter has traditionally been the most valuable trait to test for, as price differential between fine and medium diameter wools has been great enough. Even if there is no price premium, then checking for potential fibre diameter blow out is important.

Obviously if fleece weight increase is the most important trait to you, then Washing Yield should be measured so that clean fleece weight can be input to the Index to generate a more accurate Index than if only greasy fleece weight was input. Remember that wool is sold by clean fleece weight, NOT greasy fleece weight. Secondly, any Index increases accuracy with bodyweights included. Finally staple strength results will refine Index results again. Instead of using CV as an indicator of staple strength, the correct test is more accurate, hence provides a superior overall Index result.

Anyone can select and grade animals for one trait easily, but to select superior sires while looking at many traits at the same time, is not possible. An Index suitable for the woolgrowers needs is a valuable tool. They are provided free of charge.

Please contact if any queries,

Regards,

Wayne Marshall