

What is Mate Selection?

Mate selection is the simultaneous selection and mating decision. This is superior to the two-step process of first selecting which dams and sires to retain and then allocating dams to sires.

The decisions made at mating time are the culmination of many actions and decisions made throughout the year. By mating time we must have already culled poorer sires and dams, selected replacement sires and dams, and planned how best to mate them to achieve our breeding goals. We based our culling and selection on information that is the result of data we have collected throughout the year, starting with pedigree information on newborns, dates, weights, scans and tests. We've tried to ensure that the quality of data collected is high and that it can be effectively used to get our genetic estimates or breeding values (estimated breeding values: EBVs or BVs or EPDs).

Now we want to make the best decisions possible to be sure we don't cull animals we should have kept, that we select not only the right sires and dams but also use them in the most appropriate way that will achieve our breeding goals. Once these decisions are made and the animals are mated, we must see the decision through until next year when we have the chance to do it all again.

Even though we have a single figure (the \$Index – see the fact-sheet on Traits and the \$Index) that we can use to rank and select individuals that represents the best balance of traits, and we can compare across different age groups allowing us to select and cull on genetic merit simultaneously, we still have many other factors to consider.

We need to concern ourselves with inbreeding and how quickly it accumulates (see the fact-sheets on Coancestry and Inbreeding for more detailed information) so that we avoid problems in future. Some traits just aren't well represented in the \$Index or not at all and we need to manage these to get the results we are looking for (see the fact-sheet Traits). New gene tests become available on a regular basis and while we'd like to be able to use this new information, integrating it into the whole decision process becomes quite a complicated exercise (see the fact-sheet on Major Genes).

Planning the matings and making the selection/culling decision which affect the mating plan is not easy. As the number of factors we want to consider increases, our ability to assimilate them into a single, optimal decision decreases. We tend to accept a result that satisfies us rather than one which we know to be optimal.

TGRM® can take the hard work out of planning the matings, and making the selection decisions. TGRM® analyses many hundreds and thousands of mating lists in the time it takes a human to calculate some basic statistics, and is able to produce optimal mating lists that reflect your goals.

TGRM® is best used before doing the genetic culling and selection step so that an animal's impact on the entire mating can be evaluated. When it becomes necessary to reduce animal numbers, TGRM® can be run to determine which animals are least likely to contribute to the future breeding program. This is like a pre-selection or initial selection/culling that is based upon all considerations one would make at mating time. Closer to mating time when sires are selected or semen obtained, TGRM® should be run again to fine-tune the selections and uses. You can use the analysis results to purchase sires or semen, or prepare your own sires for the mating season. The mating list helps you sort females into groups for single-sire mating, and if you need to make last minute changes in the shed you can take note of these and put your final implemented mating list through TGRM® as a "Breeder's Pick" to get the predictions of the results you might expect.

Use TGRM® to explore the possibilities before spending money on finding the best sires, culling and selecting sires and dams, and committing to putting sires in paddocks for mating.

