

## Group Breeding or Marketing Schemes

There is not only safety in numbers but it makes good sense genetically. A larger gene pool means greater diversity and less risk. Spreading breeding populations across different environments improves estimates of average genetic effects. Greater accuracy and greater numbers means more genetic gain is possible. And sharing data resources means having access to more information for making selection and mating decisions.

### Retaining all the benefits

**Group breeding schemes work best when there is an overall goal and members work in harmony, not in isolation of each other.** The single biggest benefit to genetic improvement a group breeding scheme enjoys is having the very large numbers of animals to select from. More animals means more consistency each year because the chances of having good animals with the right trait mix are higher (this is a numbers game). Large numbers of animals also means it should be easier to avoid inbreeding and high coancestry. When members do not work in harmony, these benefits are lost.

**Accuracy of breeding value estimates can be improved when the population being analysed is larger.** If these analyses are conducted within a group (in contrast to within flock or herd), there will be more animals contributing to genetic estimates across more environments, resulting in better estimates<sup>1</sup>. More accuracy means more genetic progress.

**Sharing data and a common breeding goal are the first steps to making more genetic progress by forming a breeding group.** Making selection and mating decisions in concert with other group members is the next step and can retain the genetic diversity of the gene pool while still maximising genetic gain. We've seen the trends in dairy where the best bull is over-used before it is too late, contributing to high coancestry and loss of genetic diversity. This has become a significant problem in some dairy breeds in some countries. A group breeding scheme can run into the same problem if each breeder uses the same or very similar and related sires as each other. The group breeding population is effectively reduced to a much smaller number that depends upon the number of sires more than on the number of dams.

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<sup>1</sup> Accuracy of estimates depends upon many factors not included here and you should seek more information from your genetic evaluation system advisory service.



The value of data can be improved in a breeding group by ensuring member studs are well connected genetically to each other. This can be done without risking increases in inbreeding and coancestry. The benefit is better estimates of the genetic merit of individuals because all information collected is used for estimation. If a member stud is poorly connected or not connected at all, that stud will have genetic estimates that rely solely on the information collected on that stud.

Marketing and breeding groups can assure loyal and returning buyers that diversity is maintained to ensure a wide choice of sire availability. If commercial producers rely on you to supply sires year after year, they want to be assured that newly purchased sires are not only genetically better than previously purchased sires, but also unlikely to result in offspring with higher levels of inbreeding. In a commercial flock or herd, where replacement females are retained, inbreeding can accumulate if sires are not carefully selected to avoid the chances of closer relationships with dams. In commercial situations where the only information known is which sires were previously used, having access to a reliably diverse sire pool is important for maximising the return on investment into the sire team. You can provide this assurance by selecting and mating to retain diversity across the group and within individual studs.

### **TGRM<sup>®</sup> can be run for a breeding group to balance individual needs and group-level goals**

Use TGRM<sup>®</sup> in an across-group analysis to discover the best sires for each flock to improve or maintain good genetic connections among group members. Having set the “reference” sires, we can now re-run TGRM<sup>®</sup> for each group member individually to find their “best individual results”. The final analysis combines all group members into a single large run to ensure both individual and group goals are met.

The TGRM<sup>®</sup> service is flexible, allowing us to tailor how the TGRM<sup>®</sup> group analyses are performed, after consultation with the group and individuals members involved. In this way we can achieve a balance between the needs of individual members, even if their goals are slightly different, with the overall goals of the group.

If your group has other needs not mentioned in this literature, please tell us about them and ask us how TGRM<sup>®</sup> can be used to greatest benefit for your breeding group.

