

BLUP and the MERINO breeder

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Merino breeders tried to circumvent this problem with, *inter alia* control flock tests, group breeding schemes, progeny tests and veld ram clubs. The problem was completely solved just more than twenty years ago with the introduction of BLUP. If BLUP is carried out correctly and there are strict scientifically based rules and regulations, it can be a very accurate (best) method of comparing animals over different environments. Not only production and reproduction performance, but also visual assessment, using the method of linear type scoring can be included. It is, in all aspects, what Prof. De Lange refers to as "precision breeding".

Some managerial aspects need to be highlighted to afford this "precision breeding". Firstly, parentage must be recorded. BLUP utilises all genetic relationships among animals to predict breeding values. Interesting to note is that no data are ever discarded, since more data, even from dead animals, increase accuracy. It stands to reason that there should also be genetic ties among contemporary groups, meaning that some animals should have progeny in different contemporary groups. If there are no genetic links, groups cannot be compared. Secondly ALL animals (even culls) should be measured and scored. BLUP needs all available information to increase accuracy. Thirdly, measurements should be taken at the best age determined by research and all prior managerial practices, like e.g non-shearing, adhered to. "Precision breeding" requires precision inputs.

BLUP is the Best Linear Unbiased prediction of an animal's breeding value – in other words how it will breed relative to all animals in an analysis. This analysis ideally involves

Performance testing on its own has serious limitations in the genetic improvement of livestock. Animals can, for instance, only be compared within a contemporary group where all non-genetic factors, such as climate, sex, management and age are identical.

the entire breed in a country, or even in the world. Apart from being extremely accurate, BLUP obviously affords another major advantage in that the "effective population size" is vastly increased. A breeder can then select the best animals he can afford to satisfy his needs from the entire breed. Dr Jan Hofmeyr put it so aptly: "There is an effectiveness in numbers in animal breeding operations, which is seldom equalled by breeding skill". For breeders willing to go the whole hog, there is also the wonderful prize of a global market. Our first aim should obviously be a whole breed national analysis. A global analysis is, however, not so far fetched. The Hereford breed is, in fact, on the verge of implementing one. Breeders need not be concerned about the fact that there are different types within a breed. These can be accommodated by including so called genetic groups in the analysis.

Notwithstanding all these obvious advantages, breeders seem reluctant to participate. What could the reason be? The answer is undoubtedly fear. Not so much fear that they will be doing the wrong thing, but fear that they will be unmasked and lose their status as top breeders. This is a world wide phenomenon and not restricted to Merino breeders. SA Merino breeders are, in fact, by and large progressive and open

minded. There are, however, those that are doing well without much effort and are happy in their comfort zone. Best of luck to them, but rest assured that it won't last forever.

When Prof. De Lange introduced BLUP into South Africa from the USA more than twenty years ago, he and his students were more than excited and even identified two breeds that would take the lead in its application, since they had both full performance records and genetic ties. Alas, they were not really interested, since for them performance testing was compulsory and showing was prohibited. They considered themselves therefore as already being on a scientific high. This left breed societies such as Merino SA to come to the fore in the application of BLUP. They should not be too concerned about the relatively low current participation. To force breeders to participate has proved to be ineffective. What is important is that the participation is generally enthusiastic, genuine and directed at the future. This is all that matters. ■

