

# Stag referencing

An area of sire learning

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Invermay

A PILOT sire referencing scheme — which allows comparison of the genetic value of stags used on different farms — is being run under the auspices of the NZDFA, and with the co-operation of a group of Waikato breeders, the Monarch Group in Canterbury, Invermay and Ruakura.

A sire referencing scheme (SRS) takes advantage of artificial insemination (AI) to inseminate hinds on a number of farms from the same sires. These stags are known as the reference sires. Sire referencing is a progeny testing scheme.

The farmer then uses the home stags (or other semen) over other hinds in the home herd. All stags are given equal opportunity to express their genetic capabilities in the same environment.

Equal opportunity is critical to the success of a SRS. Consequently the hinds must be randomly allocated across all stags. Selection of the hinds to go to a particular stag based on weight or age or strain, is just not on as it would bias the results of the progeny test. With all hinds within a herd run under the same conditions, environmental differences which could affect the outcome of the progeny test are minimised.

In practice, semen from three or four reference sires is usually offered for use, with the farmer having to use at least two of these sires. Any number of home stags can be used, but all sires must have an adequate number of hinds so as to produce enough progeny to obtain good quality data.

In the North Island, reference sires are being offered by the Waikato breeders, while in the South Island semen will be from Monarch and Invermay stags. It is also hoped that one or two North Island farmers will use the South Island semen to give the cross-linkage between the two islands.

The pilot scheme will use only NZ Red stags to minimise complications with analysis. The reference sires

will also be bloodtyped at Invermay so that no stags with hybrid genes detectable by the blood test are used.

The progeny of all stags, both the reference and home sires, are fully recorded. This includes date of birth (approximate), sex of calf, age and winter weight of dam, weaning or 3-month weight, yearling (15-month) weight, 2-year-old weight, and velvet weight and stage of growth as 2-year-old.

Other data — such as temperament and other live weights, velvet weights and weaning weights of progeny in the case of hinds — can also be recorded.

The SRS data will be analysed at Ruakura using a sophisticated analysis package known as BLUP (best linear unbiased predictor). If the herd is already on Animalplan, the data will be transferred to the special SRS package and analysed. If the herd is not using the Animalplan system, there will be a small extra charge for analysis.

Any progeny test is only as good as the quality of the data collected for analysis. The basic requirements are:

- A minimum of 20 progeny by the reference sires
- At least 15-20 progeny by each home sire
- Hinds to be randomly allocated to each stag
- All hinds and calves given equal opportunity
- A minimum of 2 reference sires used in each herd

In practice, this means that 40-50 hinds are synchronised and inseminated by AI with reference sire semen. The 'home stags' are naturally mated around the same time so that age differences between the progeny of the reference sires and home sires are also minimised. Although single sire mating is clearly necessary, the stags can be replaced by other stags after one or two cycles, as long as parentage information is not lost.

AI is now becoming a fairly routine procedure on some farms. But it is recommended that the hinds be inseminated directly into the uterus using the laparoscopic method (ie intrauterine) while under general anaesthetic. Although this costs more than normal intracervical insemination, the conception rates are generally higher.

The total cost will be about \$3300-\$5000 depending on the reference sires selected and the number of hinds inseminated with reference sire semen. Using intrauterine insemination and allowing a conception rate of 50 per cent to reference sires, this works out at about \$200 per calf born by AI. If the conception rate was 70 per cent, the cost per calf would drop to about \$140. These costings include the purchase of semen, and an allowance for the costs of synchronisation, and insemination plus the costs of analysis and associated consultancy.

The benefits to the farmer are that it gives a comparative ranking of the 'home stags' relative to all stags used in the scheme. It is not a short-term operation. For example velvet antler weight is very important and it will be nearly three years after insemination that the first velvet data are available. It is clearly a long term commitment.

To ensure the validity of the comparative progeny test, the farmer will have to keep a good proportion of all animals sired by both the reference sires and home sires until the required data have been collected. To obtain good data, this will probably mean keeping progeny until they are about three years old. Such a pilot scheme is necessary to work out any difficulties which would be important in setting up a larger scheme. If any farmers are interested in participating in the pilot SRS, please contact David Hickman at the NZDFA as soon as possible. The pilot scheme will be restricted by the amount of semen available. □