Directions in deer breeding

Progeny testing

Is there a Sir Tristram of the cervidae?

The fifth article in a series

Progeny testing sounds complicated but in practice, it is among the simplest of controlled experiments. It is an exercise not only for the research station, but for all farmers who are looking ahead to their future herds.

If your hinds are split into mating groups for the rut, and you are single sire mating, you are already halfway home in a progeny test.

Peter Fennessy and Peter Dratch of Invermay Agricultural Research Centre, explain the benefits of progeny testing and how to put the system in practice.

Peter Dratch

Peter Fennessy

Warnham Park "David". Photo: Clive Jermy

THE AIM of a progeny test is to compare stags for what counts most – the quality of their offspring. A stag's own performance is certainly a guide to his value as a sire, but most important indicators – his weight at 15 months or his velvet weight – are subject to the influence of environment.

A stag of excellent breeding could suffer a setback during early development (due to many circumstances: Weather, feeding, infection, stress of travel) which would affect his own performance but not that of his progeny. Conversely, a stag may have grown well under a particular feeding regime and if you have purchased the stag and not the feeding formula, his progeny could do poorly on your property.

In previous articles we have mentioned that changing sires is the natural outbreeding mechanism in polygamous

Table 1: Weight gains for progeny of different sires [1]

Sire	1979 born	1980 born	
	Hinds	Hinds	Stags
A	26.3 ± 2.8 (14)	–	–
B	25.6 ± 3.9 (15)	29.1 ± 4.1 (28)	43.8 ± 4.6 (11)
C		35.7 ± 4.9 (8)	49.4 ± 4.7 (13)

1) Weight gain from weaning to 16 months for hinds, and to 14 months for stags. Standard deviation shown as ± and parentheses indicate the number of progeny tested.

▷

▷ animals such as deer. If a stag has been purchased because it comes from a particular strain or bloodline, it makes good sense to evaluate him by a progeny test – before returning to the same herd for future sires.

Progeny testing is not new – it has been a vital part of the thoroughbred industry for 200 years. Sir Tristram did not have a great race record; Vice Regal was a brilliant galloper both in New Zealand and Australia; Noble Bijou never raced. What the three stallions have in common is that they all delivered the genetic goods as sires. Their sons and daughters are winning the big races whereas other stallions with similar backgrounds, given much the same breeding opportunities, are not siring winners. Progeny testing has sorted these stallions out. Though the characters sought are different, the method is no less applicable to stags.

Requirements

The requirements for a valid progeny test are:

- Single sire mating;
- Two or more sires and mating groups;
- Equal opportunity to all stags tested;
- Performance recording of the progeny.

Single sire mating

Unless you can be sure which stag is combining his genes with which hinds, there is no way of attributing genetic superiority to a particular sire. Single sire mating is the obvious solution, but using another stag as a chaser, does not prevent progeny testing.

Because the chaser will generally mate the hind during her second or third ovulation cycle, full term calves from the chaser will come significantly later. Providing the mating groups are large enough, questionable cases can be eliminated from the test. Once blood-typing becomes more routine (see August TDF25) many of these questionable paternity cases can also be solved.

Number of stags and mating groups

To make a comparison you must use two or more stags in the same year. The number of stags you can compare will depend largely on your number of breeding hinds. Mating groups of about 40 hinds per stag are reasonable, although 30 may be sufficient. The stags under comparison should be serving close to the same number of hinds.

A useful approach is to start off testing a few stags in the first year. In the second year of testing, some of these stags can be used again, along with new stags being brought in with poor performers or old stags being eliminated. This, of course, allows for comparisons across years.

Table 1 shows this method in practice in John Cowie's herd. Two stags, A and B, were used in 1979; in 1980 stag B and a new stag, C, were used. The progeny of A and B were very similar, but the 1980 progeny of stag C were clearly superior to those of stag B, and by inference stag A. Subsequent progeny tests have confirmed this sire's superiority.

Superior stags such as C in the previous table, can be used each year as a baseline with which to compare challengers. Though velvet weight may be more important and fighting ability much less so, these monarchs must be replaced with the same lack of sentimentality as would occur in a windswept Scottish glen.

Equal opportunity

This seems to be the stumbling block in progeny testing for many farmers. When one stag looks markedly superior, it is natural to want him to serve the best hinds. It could even make short term economic sense – if the stag is genetically superior. That has yet to be tested. In devising such a test it is hardly cricket to present one stag with the first team and another with the drinks crew.

For a valid comparison, the hinds must be split up randomly between stags. The hinds and their calves must also be given equal opportunity to express their genetic potential. This means that no mating group be singled out for better feed or sunnier paddocks.

Recording

We have already touched on some of the important measures to make, such as 15 month weight, and these are further detailed in this issue's article on 'Deerplan'. The scheme is only just underway, and for those starting progeny testing during the next rut, the appropriate data should be available to compare the stags by the time their progeny have reached 15 months of age.

It is certainly not too soon to start progeny testing. Even simple comparisons such as those we have outlined can prove very good indicators in choosing stags as sires.

Today anyone with enough money in the bank can buy a stag, buck or bull of magnificent appearance and even excellent performance in terms of body weight and velvet cut. His value as a sire, however, must ultimately be shown in his progeny. ○