FARMS OF THE FUTURE

In this final article in the current series, Peter Fennessy and Peter Dratch, of Invermay Research Centre, look ahead a decade or more. They describe the deer farms which are likely to result from Red deer diversification and the application of the breeding principles outlined in previous articles.

Nobody needs a crystal ball to see that for the next few years, despite changes in the standard values and taxation, the economics of the deer industry will be centred around the high price of breeding hinds. For some farmers, new blood from Europe and North America also holds a big attraction.

In the long term however, the New Zealand deer industry will be based on the production of high quality lean venison, with velvet antler being a minor, albeit profitable, venture for some farmers. The demand for breeding females will inevitably decline to that needed for replacements.

Similarly, recent imports are going to have to find their own niche, competing with the best local stock already adapted to New Zealand conditions. Eventually, their place in the industry will be determined by recorded performance.

It is also important to recognise that given their present numbers, the animal base of the industry is Red deer. Therefore, it is the breeding possibilities with Red deer that are the emphasis of this article.

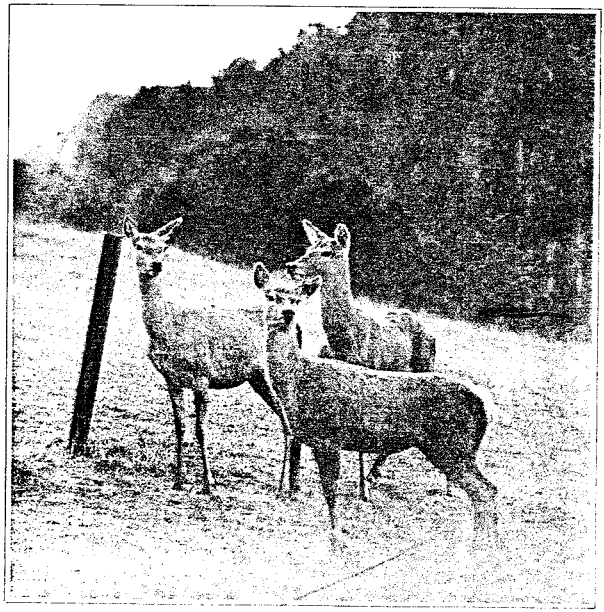
Straight Reds

In about a decade when most current deer farms are stocked up and the value of hinds reflects replacement levels, it is then that selection on the female side of the breeding equation will begin in earnest.

This is because, given the long reproductive life of hinds, only about 25 per cent of the females on a property are needed to produce replacements. If research has provided a mechanism for skewing the sex ratio so producing females is no longer left to chance, then that percentage could be reduced still further (see TDF 27: pages 25-27).

How will the deer farmer choose the hinds which will provide replacements? Deerplan has been designed to identify these superior hinds (TDF 26: pages 37-38). However, identifying those hinds which consistently deliver early calves and those which have twins could also be worthwhile long term objectives, as it is likely that both of these traits are heritable and, therefore, could be improved by selection.

Last, but crucial to continued progress in the domestication of Red deer, is temperament or ease-of-handling. We haven't established whether some calves are born more docile or learn their behaviour, but that is secondary. Most experienced deer-handlers agree that dangerous mothers often produce dangerous offspring. Eliminating them [illegible] important to the future of



Highly productive breeding hinds will fetch the premiums in the years ahead: *Selection for productive traits will be aided by Deerplan, but farmers will probably also be looking for additional traits like twinning and early calving.*

deer farming but also to that of deer farmers.

Once a mob providing replacements has been selected, how are the remaining hinds utilised? The farmer breeding straight Reds could randomly divide these females and use them to progeny test his stags, introducing at least one new male to the test each year (TDF 26: pages 50-51). Perhaps in alternate years he would compare his top performers with a purchased stag. Careful breeding records ensure that even superior stags are not crossing their grand-daughters. For the farmer who forsakes straight Reds and hybridises his herd, inbreeding is no concern, but there are others.

Hybrids

In terms of efficiency of meat production from a given quantity of feed, the most efficient system will utilise the offspring of a large male over a small female (TDF 23: pages 30-33). Farming hybrids means more than just the saving in feed to larger hinds. The greater the difference in the size of the parents, the greater the hybrid vigour. That means that most hybrid calves will be bigger than the average of their parents.

The deer farmer breeding hybrids a decade from now will measure efficiency in very different terms. Pedigree and place of origin will be much less important than performance of the animals. The most efficient meat production system will have the right combination of small females and large males which will still interbreed with consistency. Covering small hinds with the largest possible males means fast growing calves (TDF 23: pages 30-33).

If the experimental Pere David – Red deer crossing is successful, these hybrids may be just the animal in areas with a strong spring flush and summer drought. Hopefully, the earlier birth dates and larger body weights expected over straight Reds would give them a real advantage.

What are the costs of hybridisation? The more distantly related the deer being crossed, the greater the risk of losing calves and injuring valuable performance recorded females. Crossing Canadian Wapiti and New Zealand Reds requires considerable managerial skills and cannot be considered as a large scale alternative system. As is already the trend, the move will be increasingly towards mating hybrids to New Zealand Red hinds or Canadian Wapiti to hybrids, depending on time, conditions and facilities on particular properties.

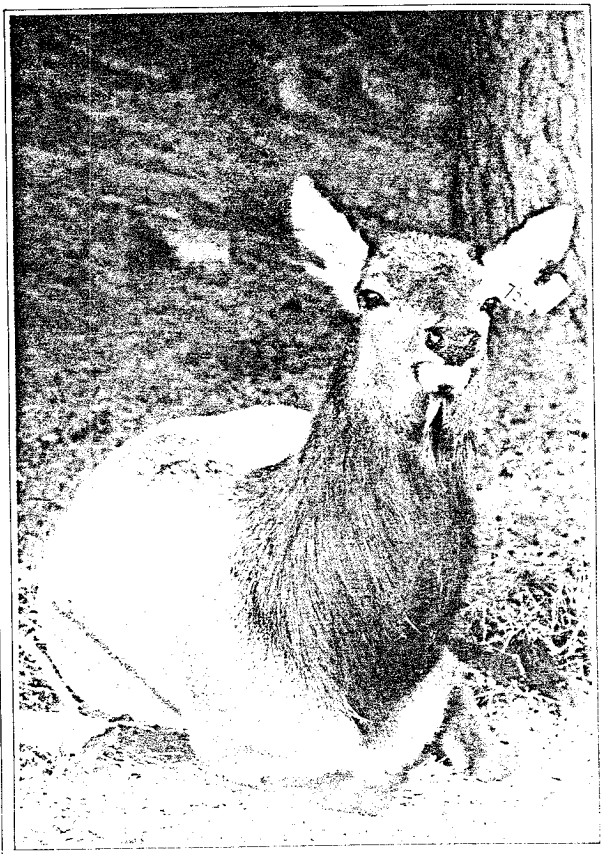
Canadian Wapiti

Breeding Wapiti will likely continue to

Table 1 – Mature weights and calving dates of New Zealand farmed deer.

Deer	Female weight	Calving date	Male weight
NZ Red deer	100	December 1	200
European Reds*	130	December 1	250
Fiordland Wapiti	170	December 7	320
Canadian Wapiti	240	December 15	400
NZ Sika	75	December 1	150
Pere David	160	October 1	280
Fallow	42	December 15	85

* Large weight variation between European Red deer subspecies



A Canadian Elk cow at Invermay: *Breeding Wapiti and Elk is likely to remain a specialist practice, with Wapiti farmers capturing an even greater percentage of the limited velvet market.*

be a specialist practice. Since Elk velvet remains the preferred product in Korea, Wapiti farms can expect to capture an even greater percentage of the limited velvet market. Wapiti breeders will also provide sires (or more likely semen via AI) to hybrid herds.

Copper deficiency and ryegrass staggers seem to be much greater problems in Wapiti than Red deer; therefore, skilled management of these animals will continue to be essential as they adapt to New Zealand farm conditions. Selection among the Wapiti or perhaps even breeding back to Fiordland Wapiti-type animals with their Red deer genes could prove helpful in conferring some resistance.

Sika and forestry

Though they sacrifice size, Sika deer could have an important role to play in North Island farms practising agroforestry. Sika do much less damage to young pine plantations than Red deer. Moreover, by using Red deer or Red-Sika hybrids as a terminal sire, considerable gains can still be made in body weight and growth rates. It will require experienced managers to know when these calves must be weaned and removed from plantations so that both the deer and the forests thrive.

Fallow

Fallow cannot interbreed with Red or any of the deer already mentioned. Moreover, both morphological and electrophoretic studies suggest they show low levels of variation in most characteristics except coat colour (TDF 35: pages 30-34). However, Fallow have thrived with this inheritance when introduced to Britain and now to New Zealand. A decade from now they'll still have a role in the industry, where small consistent carcases bring good prices.

Resources

Because they possess enormous genetic variation, Red deer and their relatives offer vast potential for deer farmers. Table 1 shows the scope of that potential. However, this variation, to be utilised successfully, requires hard choices as well as rigorous planning and management. Each type of deer has some unique requirements. Deer farming a decade from now will be no place for dabblers. Those deer farms which will be prospering 10 years hence will be the ones which are formulating their breeding objectives now.