GROWTH AND VENISON PRODUCTION: RED, RED X WAPITI, ELK

K. R. Drew
Invermay Agricultural Centre
MOSGIEL

SUMMARY

The use of Elk bulls over bigger red hinds requires good feed management but can produce heavyweight fast growing calves.

All venison from young deer is relatively low in fat but crossbred (hybrid) animals can produce 10 kg more carcass weight than red deer without an increase in fatness.

N.Z. Wapiti are always leaner than reds or hybrids.

Venison has very favourable nutritional qualities for a red meat.

The use of Wapiti, Elk or hybrid bulls for venison should be dictated by market prospects and these are not yet apparent.

Introduction

The international meat market in the 1980's has a negative image of red meat because of its supposed association with several human health problems. Red meat is seen to have a high content of saturated fat, relatively low protein and perhaps a high cholesterol content. Venison from young deer (1 + 2 years of age) can be promoted as having the best attributes of red meat without the apparent disadvantages.

Although red deer comprise most of the *Cervus elaphus* group farmed in N.Z., in recent years there has been an interest in New Zealand wapiti (ex Fiordland) or Elk (imported from Canada) for velvet antler production and breeding. To date relatively little thought seems to have been given to Wapiti or Elk in relation to meat production.

Animal Growth

All deer have seasonal growth patterns which result in peak weights occurring each year at the end of the summer. Table 1 shows some Invermay weights for weaners, yearlings and 2 year olds. Progeny from red hinds sired by N.Z. Wapiti sires (hybrids) have a "weight-for-age" performance which is something like intermediate between red and N.Z. Wapiti animals. Progeny from red hinds mated to Elk (F1 hybrids) have grown exceptionally well and these may be a strong element of hybrid vigour in these animals.

Table 1: Comparative weights (kg for males*

	Weaning weight (14 weeks)	12 month weight	2¼ year old weights
Red	46	75	133
N.Z. Wapiti x Red	56	100	165
N.Z. Wapiti	71	139	189
Elk x Red (F_1)	63	135	?

* Some data is from 1 year only.

Carcass weight and size of cuts

Well grown 2 year old red deer with a liveweight of 133 kg will yield a clean carcass weight of about 77 kg. Table 2 shows that hybrids can be expected to give an extra 10-15 kg of carcass weight at the same age. No information is available at this time on the carcasses of F1 hybrids.

Table 2: Comparative carcass weights and dressing % for 2¼ year old deer (kg)

	Carcass wt	Dressing %*
Red	77	57.9
N.Z. Wapiti x Red	91	55.1
N.Z. Wapiti	97	51.3

*Farm liveweight - Cold carcass weight

The N.Z. Wapiti and hybrids clearly have lower dressing % than red deer.

All three breed types in Table 2 have about 16% of the carcass as the premium value "saddle" cut and this means that about half the commercial value of the venison carcass is coming from 16% of the

weight. It also means that a typical 60 kg industry carcass gives a marketable saddle of about 9-10 kg while a big hybrid produces one of 15 kg. These may be marketing implications for the big saddle.

Carcass Composition

Young deer are generally very lean with a high protein and low fat content. Table 3 shows that in one years data hybrids with an extra 10 kg of carcass when compared with red deer had virtually the same protein and fat content. N.Z. Wapiti at similar carcass weight to hybrids have a little more protein and much less fat.

Table 3: Comparative whole carcass composition of 2¼ year old deer (% carc. weight).

	Carcass wt (kg)	Protein (%)	Fat (%)
Red	76	21.1	9.8
N.Z. Wapiti x Red	86	20.9	10.6
N.Z. Wapiti	88	21.3	6.4

Information from another year when the N.Z. Wapiti carcasses from 2 year olds averaged 100 kg gave the fat content as 7.0%.

The nutrient content of meat in the 1980's is an important attribute in the market place. Table 4 gives the best information we currently have for venison boned out (untrimmed) from the hind leg (18 month old animals) and is compared with recent information from the "lean meat tissue" of lamb. Although the lamb analysis would be considered very favourably in placing the product on the market, venison has a much higher protein and lower fat content.

Table 4: Nutrient content of raw venison and lamb (g/100g)

	Protein	Fat
Lamb[1)]	20.9	7.4
Venison[2)]	22.9	3.4

1) raw lean meat tissue
2) boned, untrimmed leg from 18 month old red stag

Animal size and efficiency

Peter Dratch and Peter Fennessy (1985) in a recent article in The Deer Farmer discussed the concept of efficiency and animal size. They comment "... the most efficient herd (production/feed intake) would be composed of mature females that are large enough to produce and rear calves from a terminal sire (such as a Wapiti bull) but no larger".

In recent work at Invermay, "larger" red hinds mated to Elk and carefully managed to lose surplus fat in late winter as well as being restricted in feed supply during late pregnancy have produced heavy weight, fast growing calves. The performance of these F1 hybrids has been most impressive (see Table1) and if slaughtered for meat at 1 year of age could be expected to produce a 75-78 kg carcass in time for the N. Hemisphere market if the products were air freighted. This method of production minimises the proportion of farm feed required by the breeding female (pure reds) but benefits from fast growing heavy weight hybrid progeny.

Marketing considerations

Like the traditional feral deer products, much of the present 2000 tonnes of farmed venison is going to Europe where a wide range of primal and some "added value" cuts meet a good market. The present N. American market is mainly for saddles and some hind legs but very little of other cuts. As quantities of venison increase and market knowledge improves it seems likely that there will be a great deal more carcass cutting leading to a wide array of attractively packaged products shipped as chilled meat to many markets. Already some companies are doing a great job in this field. The concern expressed by some people that world markets don't want "big cuts" may be partly a reflection of insufficient quantity of bigger cuts to make a "job lot" and will be much less important as carcass fabrication increases. Boneless saddles as striploin and tenderloin will be excellent prospects for high value sales from well prepared carcasses of all sizes provided the customer knows the size being purchased. It remains to be seen whether or not the customer in a range of markets discriminates for or against venison from Wapiti or hybrid deer in relation to taste or appearance. As producers we must avoid telling the customer his or her business and concentrate our efforts at identifying the demand and then putting our energy into meeting it with the highest possible quality products.

Reference

Dratch, P. and Fennessy P., 1985. The Deer Farmer: 23: 30-33.