



Effects of growing antlers long

Velvet antler ash content is a contentious issue. Following the introduction last year of two Korean ash specifications for velvet imported into that country, it is critical producers have a thorough understanding of the factors influencing the composition of their velvet.

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In particular, farmers need to know the effect of stage of cutting on ash levels, in order to know whether growing antlers out to increase production affects saleability. Recent research at AgResearch Invermay funded by the deer industry provides some strong pointers in this area, and provides a sound basis for future research.

In this work, 12 pairs of velvet antlers were analysed. The farmer had removed one stick of each pair at an early cutting stage ("early cut"), prior to bulbing at the tip. The other antler of each pair was left on the animal and was allowed to grow out until judged by the farmer to be at a suitable stage for cutting ("grown out"). The time difference between cutting of the two sticks varied, but was generally about 12 days. All antlers were commercially processed before analysis.

At Invermay the antlers were measured and cut into 20 discs. The antler discs were skinned and the skin samples were retained for ash analysis. The core section of each disc was ground and was scanned in a near-infrared (NIR) spectrophotometer. This is an instrument that shines light on samples, and then measures their absorption of energy. The NIR absorption information is translated into sample composition by sophisticated computer software. NIR analyses give slightly less precise results than standard laboratory methods, but are quicker and less expensive, enabling large numbers of samples to be handled. In all, 494 antler core samples were analysed.

The ash content of a number of skin samples from upper, mid and base portions of the antlers were measured by furnace combustion. On average, ash made up 3.9 per cent of skin dry matter. This average value was then used, with individual disc weights, to adjust the antler core ash data for the effect of skin.

The results

The early cut and the grown out antlers exhibited the expected differences in size. Grown out antlers were about 15 per cent longer and heavier than their early cut partners.

The position of the cut furthestmost from the tip that would result in the antlers meeting the Korean 35 per cent ash specification was estimated. On average, this was just

below the bottom of the 16th disc. There was no significant difference in this position between the early cut and the grown out antlers. This is a consequence of the fact that the 35 per cent ash specification calls for determination of ash in a 5 cm block cut from the base of the antler stick. Since ash levels in the mid regions of the early cut and grown out antlers were quite similar, the position of trimming required to cause the 5 cm chunk at the base of the remaining piece to contain less than 35 per cent ash was also similar for both antlers.

The situation was different, however, when it came to considering the Korean 25 per cent ash specification. To meet this specification, the whole piece of antler is sampled and must contain less than 25 per cent ash. In Figure 1, the data is plotted to show the cumulative ash content at each position moving down from the tip. In other words, the values plotted are those that would have been obtained if, rather than analysing 2 cm discs, the main beams had instead been cut into progressively larger chunks that began at the tips and ended at the indicated positions. As may be seen from the graph, the cumulative ash content was consistently higher in the grown out antlers. This difference had a major effect on the position of the cut that would have been required in order for the velvet to meet the 25 per cent ash specification. In early cut antlers this occurred, on average, 24 cm below the tip while, in grown out antlers, it was only 14.8 cm.

The bottom line

Growing antlers long increased production yields, but had marked effects on antler composition. In particular, ash levels were higher in grown out antlers compared to early cut velvet. If the velvet were destined for Korea, this increase would have had a dramatic effect on the amount of trimming of

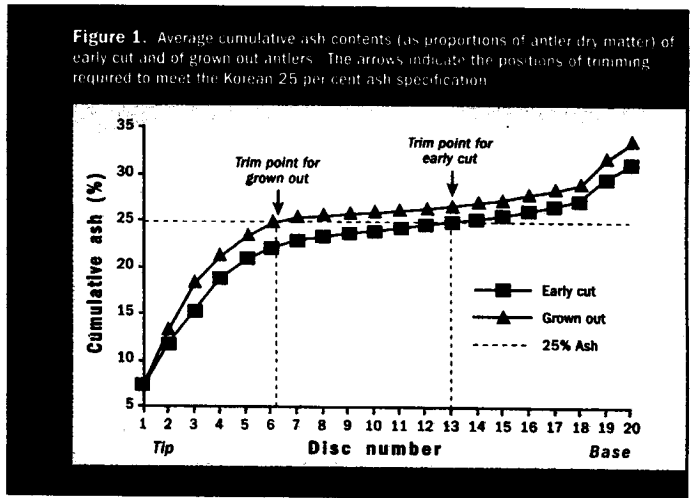


Figure 1. Average cumulative ash contents (as proportions of antler dry matter) of early cut and of grown out antlers. The arrows indicate the positions of trimming required to meet the Korean 25 per cent ash specification

grown out antlers that was required to meet the stringent 25 per cent ash specification. In the case of the 35 per cent specification, both grown out and early cut antlers in this experiment could have been trimmed at about the same distance from the tip. However, in the grown out antlers the proportion of each stick below the trim position would have been greater than in the early cut ones. Consequently, growing antlers out would also have affected yield per kg of velvet meeting the less stringent 35 per cent ash specification.

Ash distribution patterns are known to differ in velvet from different herds, so the results should only be taken as a broad indication of the effect of cutting stage on antler ash. Also, further research would be required to determine the effect of other factors that would be expected to influence antler composition, such as animal genetics and nutrition.

However, it is apparent that farmers aiming to increase production yields by growing antlers long need to be aware that in doing so they are affecting the overall quality of their velvet. At the time of writing this article, it was possible that the Korean regulations might change again. If this happens, the principle that early cut velvet is lower in ash, and hence higher in active components, will still apply. Market forces will inevitably affect the removal time, in the form of premiums paid for velvet cut at the most desired stage.