

# Farmed deer herd health and production profiling : 3. Factors affecting growth to weaning

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This paper presents risk factors associated with the liveweight of red deer (*Cervus elaphus*) on 1 April, i.e. at 4 months of age. During a 2-year observational study, about 2700 hinds were individually monitored for reproductive success. The composition of calving groups, calving and weaning management practices, and grazing history for each hind were recorded. Blood samples and faecal parasite egg and larvae counts were also recorded at weaning. At weaning, calves were identified according to the calving mob they come from. Individual weaner weights on 1 April (W4) were calculated.

Risk factors potentially affecting W4 were identified, e.g. individual dam-offspring characteristics, lactation and weaning management practices, post-weaning management variables, and weaner biological markers. Weaner stag and hind data were analysed separately. Preliminary data analyses were carried out to identify associations between single descriptive variables and individual calf live weight on 1 April. Variables which showed sufficient evidence of an association in these analyses ( $P < 0.20$ ) for both stag and hind calves were included in multi-variable analyses (Kleinbaum *et al.*, 1982) using multiple path models (Pedhazur, 1982) with a 5% significance limit.

Live weight of individual calves at W4 ranged from 19.9 to 64.5 kg for hinds and from 29.6 to 67.0 kg for stags over the two years of study. Major individual dam factors associated with high weaning live weight were a high dam live weight, early conception of the dam, dam being over 2 years at calving, high dam pre-calving body condition score and high dam pre-calving liveweight

gain. These analyses also supported the commonly believed beneficial effect of introducing imported blood lines or cross-breeding with Wapiti-type deer in producing heavy weaners. Early weaning and early anthelmintic treatment appeared beneficial, which was in accordance with high faecal parasite larvae counts found on farms with low weaner live weights. Good weather pattern and grazing swards no shorter than 10 cm were also identified as beneficial factors. This latter finding strongly supports previous experimental evidence (Ataja *et al.*, 1989).

It must be remembered that path diagrams are built on the basis of current knowledge of deer production and biological considerations, determined by research on other domestic species and field experience. There is no proof of causal relationship in the associations identified here. Those require further evaluation and validation. These results, however, can be used for recommendation of farming practices likely to improve weaner live weights on 1 April.

## REFERENCES

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