

# The effect of ivermectin on reindeer offspring's weight gain and survival: preliminary findings

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*Abstract:* Fawn survival is a central issue for Scandinavia's reindeer industry. Nonetheless, there has been minimal research conducted on parasitism's effect on reproductive success of female reindeer and their ability to foster viable offspring to weaning. Investigation of the ecological relationship between parasitism and host fitness, as well as the economic and veterinary medical importance of anthelmintic treatment, is facilitated by conducting field trials in which animals treated with anthelmintic are compared to nontreated controls. We are presently conducting a randomized field trial to explore the effects of ivermectin treatment on pre-reproductive and mature female reindeer. Our primary response variables include age at first reproduction, and offspring survival and weight. Findings will provide fundamental information required for the development of an optimal parasite treatment strategy which aims at minimizing parasite transmission and maximizing meat production. The possible long-term negative side effects of ivermectin are also being explored. On a theoretical level, project result could elucidate the effects of the general parasite community on herd population dynamics and provide data for the study of various quantitative genetic relationships in reindeer.

Nieminen (1989) found that offspring of ivermectin-treated females at Kaamanen Reindeer Research Station, Finland, had a significant 0.5 kg increase ( $p \leq 0.05$ ) in average live birth weight and a non-significant 2.1 kg increase ( $p > 0.05$ ) in average autumn live weight.<sup>1</sup> However, our preliminary findings indicate that ivermectin treatment of females induces no significant or consistent increase in mid to late-summer fawn live weight in coastal Northern Norway. This discrepancy from the Finnish results may be explained by several factors, among which sample size or differences in parasite abundance are likely candidates. The response variable that showed the strongest treatment effect in our preliminary results was fawning percent.<sup>2</sup> Ivermectin treated females had a 9 % higher fawning rate (64 % vs. 55 %) than control females, although the difference was not statistically significant (Fisher's Exact Test,  $p=0.15$ ;  $n=180$ ).

<sup>1</sup> We calculated the statistical significance from the means and S.E. published in *Poromies-Lehti*. 3/1989.

<sup>2</sup> Fawning percent is defined as the proportion of research females that was accompanied by a fawn during the time of summer sampling.