

of considering that this is a concern only of others. Anthelmintic resistance will not disappear spontaneously, and must inevitably increase if the traditional methods of worm control continue to be practised. It is unrealistic to assume that the development and release of alternative, highly effective anthelmintics will keep pace with resistance to existing drugs. Nor can one be sanguine about the expectation that non-chemotherapeutic methods (such as worm vaccines) will resolve this problem in the short term.

It is doubtful whether control programmes which have anthelmintic treatment as a component can avoid selecting for resistance. However, if users of anthelmintics are made aware of the best ways to use these drugs to extend or maintain their effectiveness, this will allow more time to explore the possibilities of other methods of worm control.

Short-term behavioural responses of Svalbard reindeer to direct provocation by a snowmobile

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Summary: Short-term behavioural responses of 101 groups of Svalbard reindeer (*Rangifer tarandus platyrhynchus*) to direct provocation by a snowmobile were recorded in April (late winter) 1987. The median size of groups = 3.3 animals. Reindeers' first visible responses to an approaching snowmobile usually involved independent behaviour by different individuals in a group. Flight, by contrast, was a co-ordinated group response. Groups' median response distances were: minimum reaction distance = 640 m, disturbance distance = 410 m, distance at initial flight = 80 m and distance of flight = 160 m. Groups' median response times were: total running time = 22 s, total locomotion time = 38 s, maximum duration of disturbance = 193 s. Energy and time budget models indicate that one median flight response can cause an increase in a reindeer's daily energy expenditure (DEE) of approximately 0.4 % and a loss of daily grazing time (DGT) also of 0.4 %. Corresponding values for one maximum and one minimum flight response are 4.7 % and 0.01 % of DEE and 4.6 % and 0.03 % of DGT, respectively. The rate of disturbance of reindeer by normal snowmobile traffic, measured during 24 h

watches of groups of animals, was one disturbance per group per two days. Reindeer which were disturbed by normal traffic walked away slowly but never ran at all during this series of observations.

This study, which considered only reindeers' immediate, overt responses to provocation and which purposely ignored all psychological and physiological aspects, failed to detect any way in which the current level of snowmobile traffic might substantially reduce the physical well-being of Svalbard reindeer. This surprising conclusion is based principally on consideration of the low frequency with which the animals are overtly disturbed by normal snowmobile traffic together with the short duration of their response to disturbance. Clearly, also, there is no reason to expect Svalbard reindeer to respond to provocation in the same way as other subspecies of *Rangifer*. Caribou or continental wild reindeer live under constant threat of suddenly having to gallop off from biting flies, wolves, hunters etc. Having to escape from things in a hurry is part of their daily life; for Svalbard reindeer this is not the case.