

The effects of first-season strategic and tactical ivermectin treatments on trichostrongylosis in the first- and second-season grazing

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Abstract

A 2 year study was conducted to evaluate the effects of first-season strategic or tactical treatments with ivermectin on trichostrongylosis in heifer calves in the first and second-season grazing. Three groups of each eight Holstein-Friesian calves were turned out in early May onto a permanent pasture naturally contaminated with trichostrongyle larvae. Two of these groups were given ivermectin either as strategic treatments (Weeks 3, 8 and 13 after turnout) or as tactical treatments (Weeks 14, 18 and 22 after turnout); the third group served as untreated controls. The strategic ivermectin treatments prevented build-up of high herbage infectivity from mid-summer onwards as shown by low trichostrongyle egg outputs, serum pepsinogen levels and serum antibody responses. In spite of exposure to continuous high larval challenge in late season, the pathogenic effects of worm loads in calves receiving the tactical ivermectin treatment were significantly suppressed. The performance of the strategically treated calves tended to be higher than that of the tactically treated calves in the first-season grazing; yet, there was no statistical difference. During the following summer, all three groups were grazed in a single herd together with a new group of eight first-season calves. No anthelmintic treatments were given to any animals during the season. From late August until the end of the season all animals were given weekly experimental challenge infections. Following the challenge infections, the first-season calves developed clinical parasitic gastroenteritis, whereas the second-season heifers showed no symptoms. At post-mortem it was found that worm burdens mainly consisted of early fourth-stage larvae (L₄) of *Ostertagia ostertagi* (> 97%). Fewer adult worms were recovered from the untreated animals than from the treated ones. However, serum anti-parasite IgG1 responses and post-mortem worm counts suggested that the untreated heifers harboured markedly fewer adult *O. ostertagi* than the previously treated ones, indicating a higher level of immunity against adult worms. However, this difference did not have any clinical impact in this experiment.

Author Keywords: Cattle-Nematodes; Control methods-Nematodes; Ivermectin; Immunity

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