

## **Effects of *Ostertagia ostertagi* and omeprazole treatment on feed intake and gastrin-related responses in the calf**

### **ABSTRACT**

Infection with the bovine abomasal nematode, *Ostertagia ostertagi*, results in a loss of acid-secreting parietal cells and an increase in gastric pH. The effects of an experimental infection with *Ostertagia* and/or daily treatment with omeprazole (OMP) at 2 mg kg<sup>-1</sup> bodyweight for four consecutive days (experiment days 24–27, inclusive) on voluntary feed intake, blood and tissue gastrin concentrations, abomasal G-cell numbers, gastric pH, and blood cholecystinin (CCK) and pepsinogen concentrations were investigated in the calf. *Ostertagia*-infected calves demonstrated a significant drop in feed intake between days 24 and 27 post-infection (38%;  $P < 0.001$ ) and in G-cell numbers (42%;  $P < 0.05$ ) and significant increases in abomasal pH ( $P < 0.001$ ), fundic mucosal weight (99%;  $P < 0.01$ ), and blood gastrin ( $P < 0.05$ ) and pepsinogen ( $P < 0.0001$ ). OMP treatment of worm-free animals resulted in a significant drop in intake between days 24 and 27 (30%;  $P < 0.001$ ) and in G-cell numbers (17%;  $P < 0.05$ ) and significant increases in abomasal pH ( $P < 0.01$ ) and blood gastrin ( $P < 0.001$ ). OMP treatment of *Ostertagia*-infected animals with an existing hypergastrinaemia had no effect on feed intake, abomasal pH, blood gastrin or pepsinogen or abomasal G-cell numbers. Blood CCK concentrations were also unaffected by either *Ostertagia* infection or OMP treatment. These data suggest that: (a) the depression in feed intake associated with OMP in worm-free calves was not due to a side effect of drug treatment; (b) inappetance in *Ostertagia*-infected animals is closely associated with the parasite-induced hypergastrinaemia; and (c) the elevation in abomasal pH was a major factor responsible for the elevated blood gastrin concentrations seen in parasitised and OMP-treated animals.

**Keyword:** Appetite, Cattle–Nematoda, Gastrin, Omeprazole, *Ostertagia*