

THE PARASITIC PHASE OF *OSTERTAGIA OSTERTAGI*: QUANTIFICATION OF THE ESTABLISHMENT RATE USING SYSTEMATIC REVIEW AND META-ANALYSIS TECHNIQUES.

Verschave S., Vercruysse J. , Claerebout E., Geldhof P. and Charlier J.

Department of Virology, Parasitology and Immunology, Ghent University, Belgium

Ostertagia ostertagi is the most common gastro-intestinal (GI) nematode of cattle in temperate climate regions and poses important constraints on animal productivity. This parasite has a direct life cycle, consisting of a free-living and a parasitic phase. During the parasitic phase, the three main parameters that determine the parasite density within the host are the establishment rate and mortality rate and fecundity rate of adult worms. Transmission models and nematode control will benefit from more accurate estimates of these life history traits and their variation.

The aim of this study is therefore to quantify one of the three main life history traits of the parasitic phase of *O. ostertagi*, namely the establishment rate and to assess factors affecting this rate.

A literature search was conducted using a systematic review protocol to find experimental trials in which naïve calves were infected with *O. ostertagi* without treating them with anthelmintic drugs and in which a necropsy was performed to assess the intestinal worm burden. Using general keywords a first search resulted in 5266 potential publications. Next, a title-based selection generated 404 infection trials. An article-based selection resulted finally in only those trials needed to calculate the worm burden/infection dose ratio, which serves as estimate for the establishment rate. An overall inverse variance weighted estimate was computed by using the summary data reported in the trials, or if needed, by using summary data calculated based on the provided info. The influence of host age, infection dose, infection mode and duration of infection on the establishment rate was analysed through a random effect model with these factors as moderator variables.