

Introduction

Characterization of pathogenic (and non-pathogenic) *Eimeria* spp. in calves housed in dairy farms is important for determination of potential economic losses.

A significant part of these losses comes from clinical healthy calves.

The aim of the present study was to determine the prevalence of several *Eimeria* species in clinically healthy calves, housed individually or grouped in pens of dairy farms.

Materials and methods

Faecal samples were obtained from 101 clinically healthy calves, aged between 7 to 70 old days, in 27 dairy farms of north Portugal (Barcelos - Braga District). At least 20% of calves each farm were sampled.

The Benchtop flotation procedure method was performed.

The Chi-square or Fisher's exact tests and ANOVA were performed in order to analyse the differences between percentages and means, respectively.

Only highly prevalent species in each sample were considered.

Results

Farms affected

Eimeria spp. any oocyst were observed in 81.5% (22/27) of the farms, without any oocyst observation in the 15 calves of the remaining 18.5% (5/27; P<0.001) farms.

A mixed infection was observed in 47.4% of the farms.

Prevalence of *Eimeria* spp. in calves

Oocysts of *E. alabamensis* (29%; 14/48), *E. bovis* (21%; 10/48), *E. zuernii* (17%; 8/48), *E. ellipsoidalis* (17%; 8/48), *E. subspherica* (12%; 6/48) or *E. cylindrica* (4%; 2/48; P<0.05) were identified in 47.5% (48/101) of the calves (Fig. 1).

No differences between age (peak infection) were observed in infected (51.1 ± 2.80 ; \pm S.E.M.; n=48) and not infected animals (53.0 ± 1.8 ; n=53; P>0.05), even when each *Eimeria* species was considered.

Individual versus group pens

A higher prevalence of *E. ellipsoidalis* was observed in farms with the calves housed in group (75%; 6/8) than in farms with individual pens (25%; 2/8; P<0.05; Fig. 2).

In opposition, a higher percentage of *E. zuernii* (75%; 6/8) was observed in individual pens than in group (25%; 2/8; P<0.05).

No other *Eimeria* species showed a distribution according to mode of housing.

However, no significant differences were observed between individual (44.3%; 27/61) and group (52.5%; 21/40; P>0.05) housed calves, when all animals infection were considered independently of the *Eimeria* species.

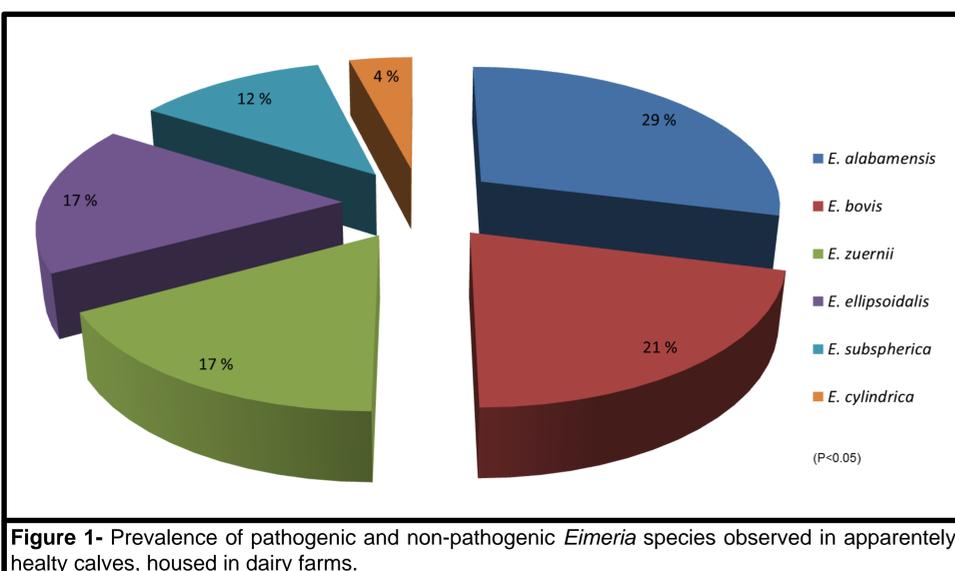


Figure 1- Prevalence of pathogenic and non-pathogenic *Eimeria* species observed in apparently healthy calves, housed in dairy farms.

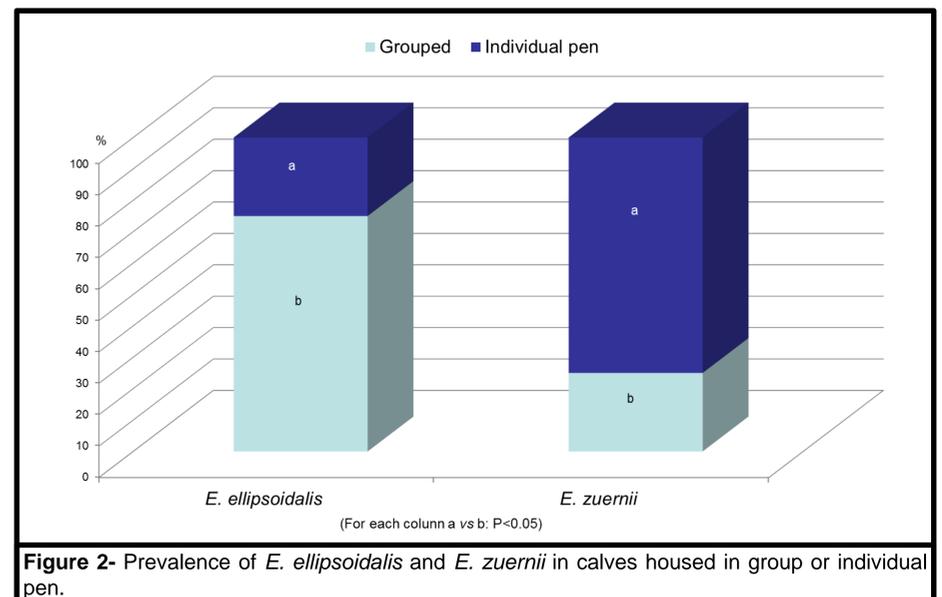


Figure 2- Prevalence of *E. ellipsoidalis* and *E. zuernii* in calves housed in group or individual pen.

Conclusion

A significant number of dairy farm are affected by *Eimeria* spp. with mixed infections

E. alabamensis and *E. bovis* appear to be the most prevalent pathogenic of *Eimeria* genus affecting calves of the sampled dairy farms. Another study could attempt to evaluate economic impact of these high prevalences in clinically healthy calves.

The difference of *E. ellipsoidalis* and *E. zuernii* prevalence related with the two distinct types of housing suggests that further studies are needed in order to truly access the real infection critical points.

References

- Sánchez RO, Romero JR, Founroge RD., 2008. Dynamics of *Eimeria* oocyst excretion in dairy calves in the Province of Buenos Aires (Argentina), during their first 2 months of age. *Vet Parasitol.* 151(2-4): 133-8.
- Bangoura B, Mundt HC, Schmäsckhe R, Westphal B, Dausgchies A , 2011. Prevalence of *Eimeria bovis* and *Eimeria zuernii* in German cattle herds and factors influencing oocyst excretion. *Parasitol Res.* 109 (Suppl 1): S129-38.

