Tick-borne diseases in asymptomatic cattle from São Miguel Island, Azores – A clinical perspective

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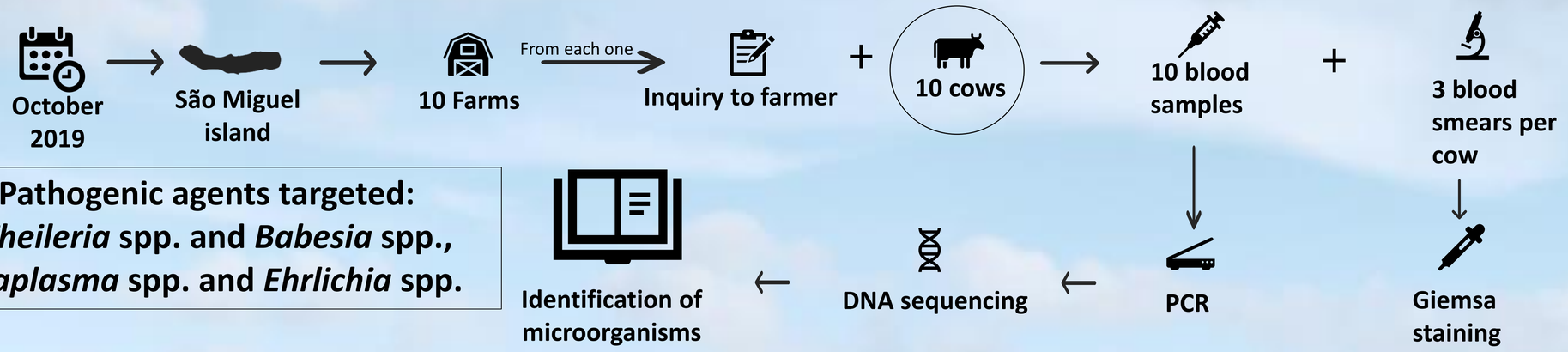
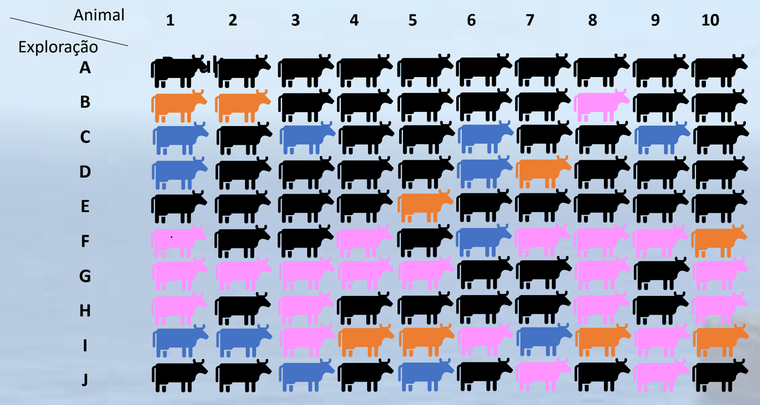
Introduction:

The Azores archipelago is one of the regions with the highest cattle production, in Portugal. Outbreaks of tick-borne (TB) diseases have been reported by local field veterinarians and different tick species are described in São Miguel. At this study, we decided to investigate the presence of some of these agents in asymptomatic cattle, in São Miguel.

Material and methods:



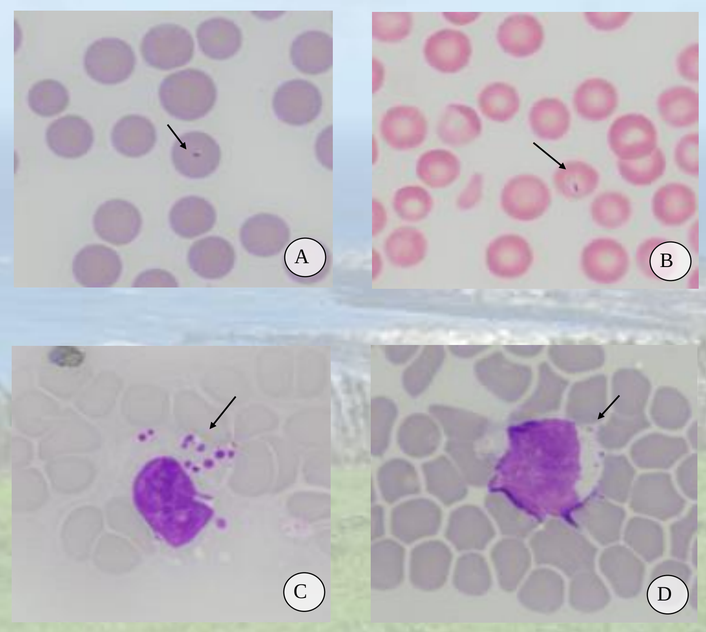
Results:



Individual PCR results for *Babesia* spp. and *Theileria spp.:* ( )- positive results; ( )- negative results.
DNA sequencing results: ( )- *Theileria orientalis* genotype buffeli infection; ( ) - *Theileria orientalis* genotype Chitose infection; ( )- *Theileria orientalis genotype Buffeli and Chitose* infection.

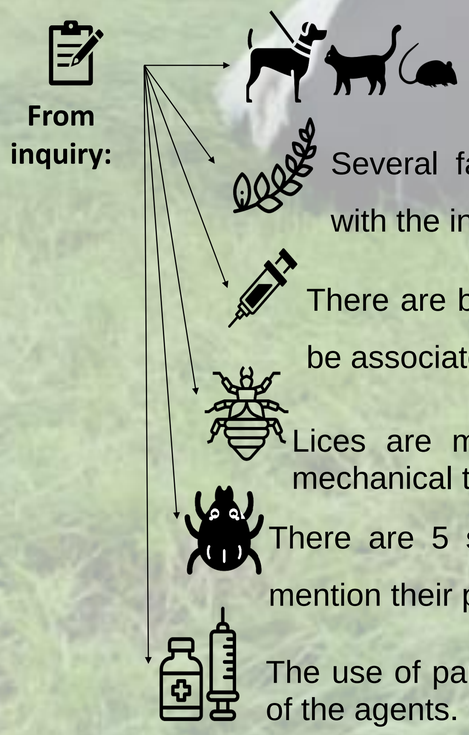
Individual PCR results for *Anaplasma* spp. and *Ehrlichia spp.:*( ) - positive result; ( ) – negative result.
DNA sequencing result: *Anaplasma bovis.*

There were 45 positive samples later confirmed as species belonging to the *Theileria orientalis* group (45/100, 45%), in 9 farms (9/10, 90%) and it was also possible to identify *Anaplasma bovis*, in 3 animals, at two farms (2/10, 20%).



A and **B**: Intraerythrocyte forms (black arrow) compatible with *Theileria orientalis,* sample: A – E5; B – F7.
C and **D**: Intramonocyte form (black arrow) compatible with *Anaplasma bovis*, sample F1. (smears stained with the *Giemsa* method, magnification of 1000x).

Discussion:



Many animal species come into contact with cattle, which can lead to infections by infected ticks.

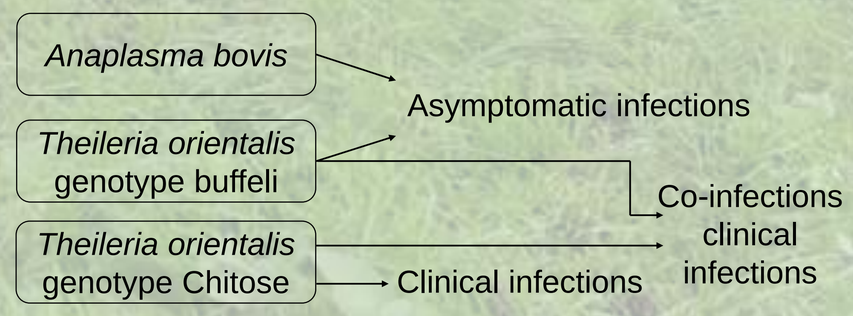
Several farms reported history of animal presenting hemoglobinuria, associated with the ingestion of the fetus *Pteridium aquilinum*.

There are bad habits in the exchange of needles between administrations, could that be associated with the mechanical transmission of the agent?

Lices are mentioned several times by producers, could they be associated with mechanical transmission?

There are 5 species of ixodids in São Miguel island, although the producers never mention their presence.

The use of parasite control methods can influence the prevalence and endemic stability of the agents.



Conclusions:

In conclusion, two herds were positive for *Anaplasma bovis* and nine herds were positive for *Theileria orientalis*. To our knowledge, this is the first reference to the presence of *Anaplasma bovis* in Portugal and of *Theileria orientalis* in Azores archipelago. It's important to know the epidemiology of each geographic region, not only for these agents. In order to avoid underdiagnosis or misdiagnosis, as well as to make known any associated economic losses.

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