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# Rapid selection of multiple-resistance to eprinomectin and benzimidazole in a dairy goat farm

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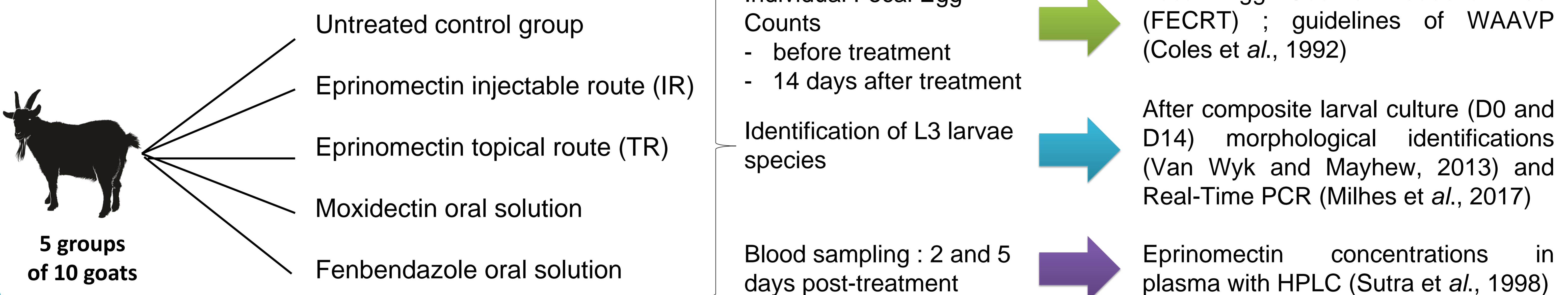
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## Observations and objectives

In a French dairy goat farm with high mortality rates and severe anemia, a vet practitioner noted a poor efficacy of eprinomectin treatments. This flock includes 70 lactating goats from the Alpine breed and was firstly constituted in 2012 with young kids. They are allowed to graze from March to September on 5ha, with complementation food and are regularly treated with eprinomectin each year in June and in August. The aims of this study were i) to explore this suspected case of eprinomectin resistance with a Fecal Egg Count Reduction Test completed with the measurements of eprinomectin concentrations in serum and ii) in case of resistance, to identify the eprinomectin-resistant gastrointestinal nematodes species.

## Materials and Methods



## Result of Fecal Egg Count Reduction Test

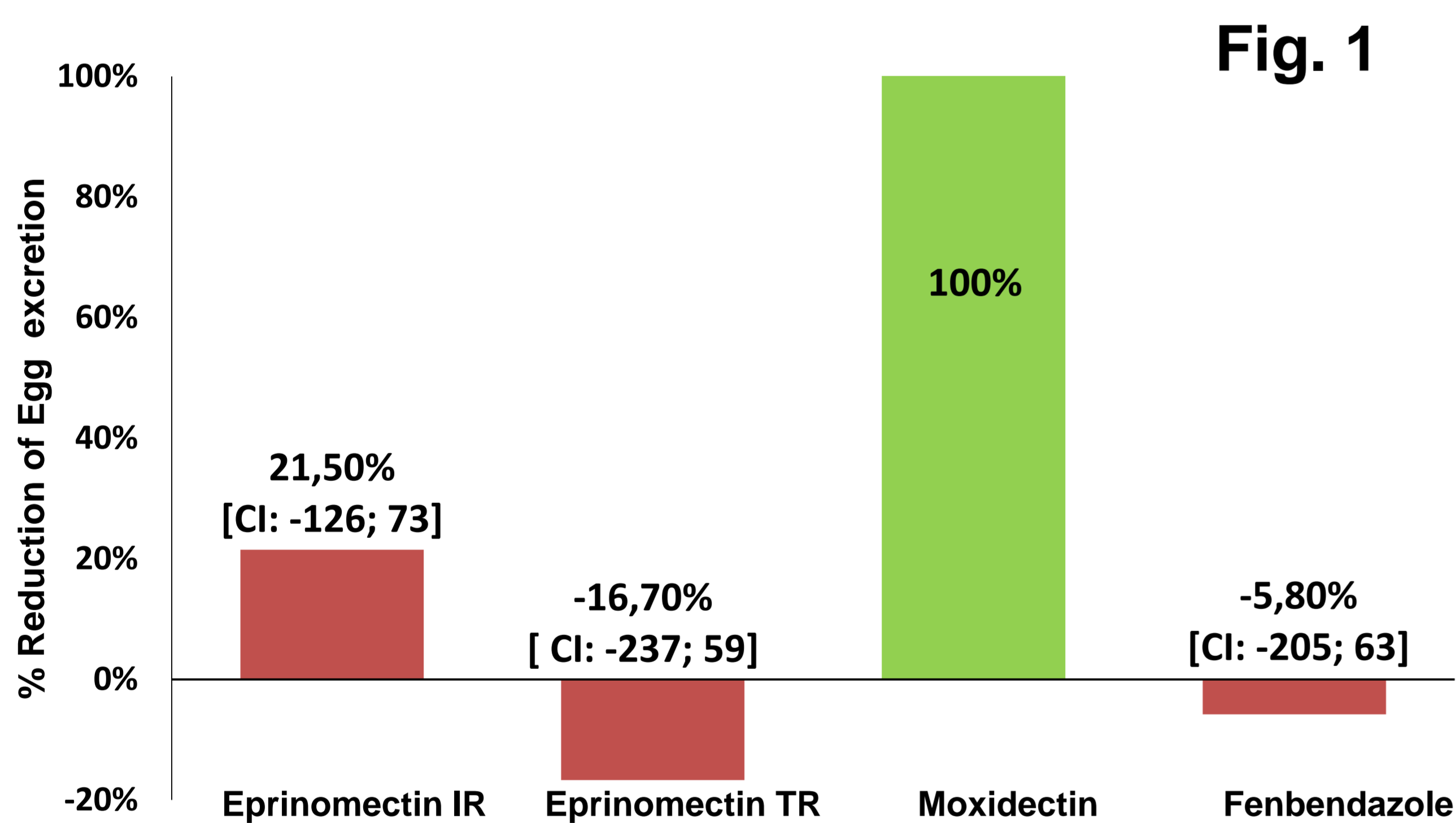


Fig. 1: FECRT showed a low efficacy of fenbendazole and of eprinomectin whatever the route of administration (IR or TR).

Moxidectin was totally effective in this farm.

## Identification of GIN Larvae L3 species after bulk cultures

Morphological and molecular analyzes showed similar results: *Haemonchus contortus* is the major species (99%) found after treatments of the two groups Eprinomectin IR and TR and in the Fenbendazole group.



## Serum concentrations of eprinomectin in Eprinomectin IR and Eprinomectin TR groups

Fig 2. A Serum concentrations of Eprinomectin applied by the injectable route at Days 2 (blue) and Days 5 (red)

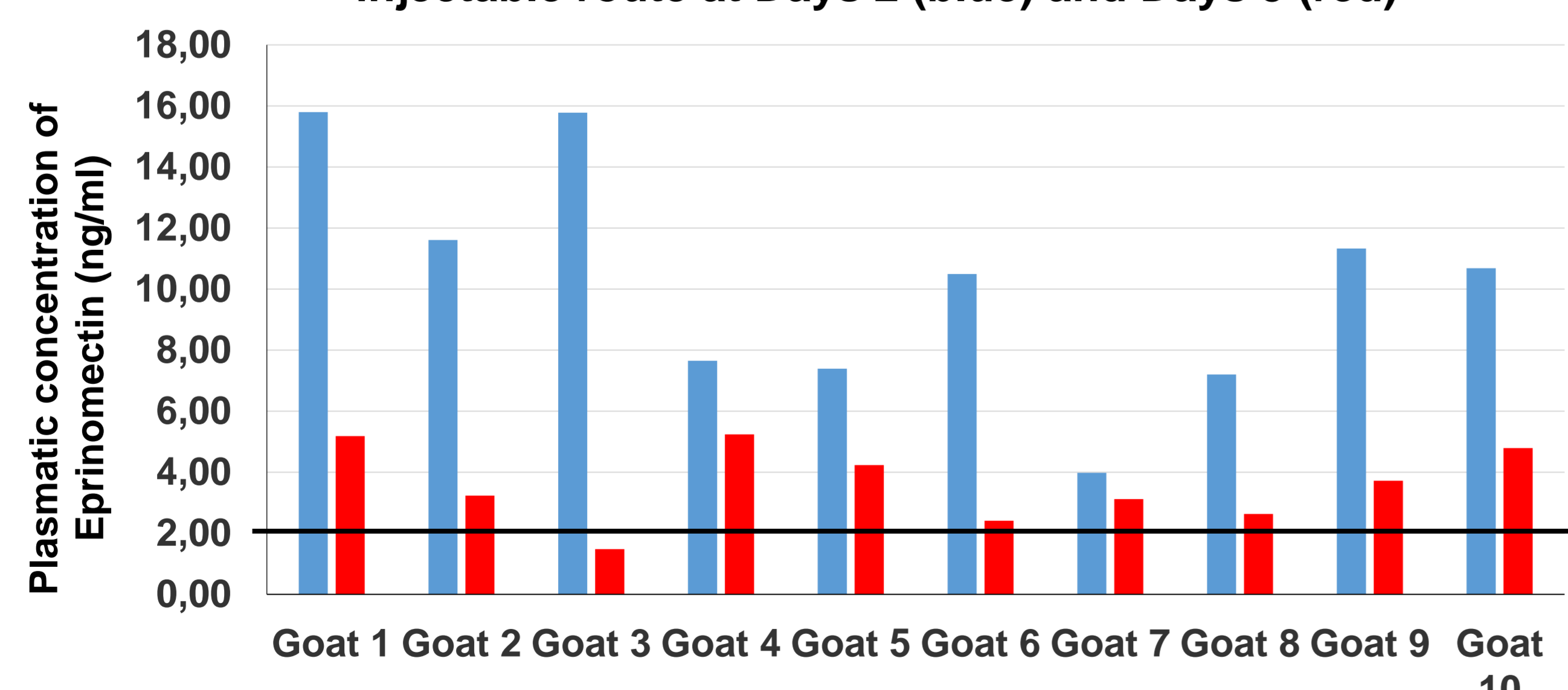


Fig 2. B Serum concentrations of Eprinomectin applied by topical route at Days 2 (orange) and Days 5 (green)

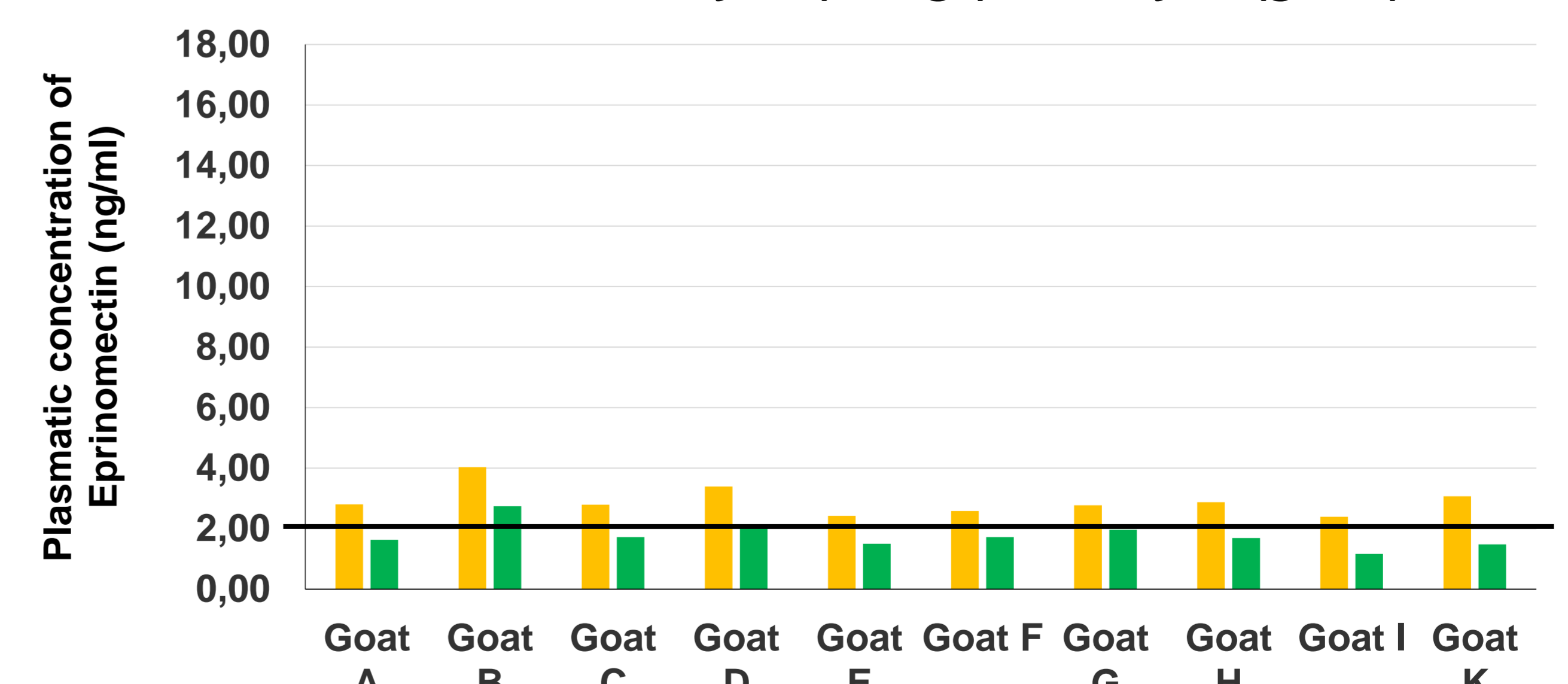


Fig 2. A & B: At day 2, eprinomectin concentrations were higher than 2ng/ml (the minimal active concentration) whatever the goats and the treated groups. The lack of efficacy was not due to a suboptimal exposition of nematodes to the eprinomectin but to a resistant population.

This is the first report of multiple-resistance to eprinomectin and benzimidazole in a *Haemonchus contortus* population in France.