

Evaluation of infestation level of cattle by the tick *Rhipicephalus microplus* in New-Caledonia : Test of a new assessment grid

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Primary Area and Topic :

Services

Animal Identification.

Summary

The cattle ticks represent a particularly important danger for ruminant production, because of the losses they directly cause, or because of the infectious diseases they are associated with. In New Caledonia, as in other tropical regions, the tick *Rhipicephalus microplus* represents a real plague, leading to very important losses in cattle herds. Moreover, since a few years, the efficiency of acaricide treatments classically used mark time and resistance of the parasites becomes widespread. So, the development of alternative methods of control of the infestation by the ticks is nowadays essential. Among these, the identification of more resistant lineages of cattle to the ticks, or the culling of the most sensitive animals, are interesting tools to decrease the impact of the ticks in the herds. The evaluation of the level of individual infestation represents therefore a particularly interesting tool for the herd survey.

An assessment grid of the individual infestation by the ticks was worked out in New Caledonia, and applied periodically, in several herds. This semi quantitative grid allows a relatively fast and precise evaluation of the level of infestation, by taking into account the number of semi- and engorged females and the importance of the infestation by the immature stages. The number of semi- and engorged females on one side of the body is either counted, or estimated according to a classification in 7 classes (from 0 to more than 100 ticks), according to the ease of the observation of the ticks on the animals. For the immature stages, the observations are realized in three physical locations of preferential infestation by the ticks (tie of the tail, perineum, neck), following a classification in 5 classes in each location. Finally, these notes are combined in a score of degree of infestation, which varies in a continuous way from 0 to more than 100. This score follows a Poisson distribution, the most common statistical distribution in parasitism phenomena.

Various applications are in progress on the field in New Caledonia. First of all, the evaluation of the infestation by the breeders to identify the most infested individuals is a useful management tool. It allows, after several counting, to identify animals most regularly infested in order to cull them first. The identification of resistant lineages of cattle to the ticks requires a more important implication of the breeders with the realization of regular counting and the follow-up of the genealogies of animals. Such a study started in New Caledonia, on about 300 individuals of known filiation. Finally this method allows to compare the degree of infestation of the animals of various breeds.

The method tested in New Caledonia is operational. Its application in the herds represents a usable additional tool in alternative strategies of fight against the ticks. It also interests the breeders in the tropical regions who face the danger of the tick *Rhipicephalus microplus*.

Keywords : cattle ticks, susceptibility, resistance, survey