ABSTRACT

East Coast Fever (ECF) is a tick borne disease endemic in the North Rift region of Kenya. The ECF infections lead to substantial economic loss to smallholder dairy farmers from veterinary costs incurred in using prophylactics and value loss associated with animal mortality and production decline during disease infection. Traditionally, prophylactic strategy of choice is application of acaricide in communal dips and hand spraying, but effectiveness of the strategy is a factor of good management practices, and it is at a cost to resource poor farmers. An alternative prophylactic strategy is vaccine but empirical evidence is scanty to inform use and effectiveness of vaccine in ECF management decisions. This study assessed whether the three prophylactic strategies of acaricide, vaccine and their combination significantly differ in ECF prevalence rates, associated management actions applied and economic losses. ECF infection was based on disease symptoms farmers observed. Data was obtained in a cross sectional survey of 164 smallholder dairy farms, randomly selected and stratified by agro-ecological zones and grazing systems in two Counties that are predominant in dairy production. Data analysis applied Chi-square test statistic to determine ECF prevalence rates and management practices and computed ECF induced economic loss when using any of the three prophylactic strategies. Among the animals examined (n=1038) on the sample farms, the ECF infection prevalence (18.7%) did not differ ($p>0.05$) between using a combination of acaricide and vaccine (22.9%), vaccine alone (18.4%) and acaricide alone (18.0%). The ECF infections was prevalent in about half of the sample farms (46%) and more farms used acaricide (79.9%), while a few used combined acaricide with vaccine (16.5%) but use of vaccine alone was unpopular (3.7%). The symptoms that farmers associate with ECF were; swollen lymph nodes, restlessness, passing of red urine and hard dung. Whenever farmers observed these symptoms they most frequently action was to seek professional vet services regardless of prophylactic strategy. Economic loss per farm per year was lowest for farms using vaccine (USD 2.27) compared to farms using acaricide and vaccine combined (USD 61.26.) or acaricide alone (USD 109.78). Disease prevention and non-vet cost accounted for the largest economic loss. These results show that use of vaccine alone is still unpopular among smallholder dairy farmers yet has a comparable effectiveness with acaricide regarding infection rates and is much cheaper. Farmers apply similar management responses whenever they suspect ECF case. Therefore extension service needs to popularize more use of vaccine because farmers would reduce the associated economic losses by up to 55.8 times when using the vaccine alone.