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## Tick Infestation and its treatment in Sahiwal Calf - A Case Report

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### Abstract

A two-week-old Sahiwal female calf in Livestock Farm Complex, C.V.Sc., Korutla observed to be infested with ticks during winter season. The calf is properly restrained and has been treated with Flumethrin 1% Pour on solution @1ml/10kg BW and supplemented with Sharkoferol syrup @ 3gm/day.

**Key words** Sahiwal calf, ticks, Flumethrin, Sharkoferol

### Introduction

Mostly ticks are found as external parasites in cattle and results in severe economic losses if these blood sucking parasites are not treated effectively. Tick infestation leads to indirect loss on performance and production causing skin irritation, anemia, loss of body weight, diseases, etc. These ticks are considered as major vectors for transmission of diseases belonging to the Phylum Arthropoda and Class Arachnida seen mostly during warmer and wetter parts of the year. The presence of ticks predominantly found over dewlap, brisket, below ears, between legs, near tail and base of udder.

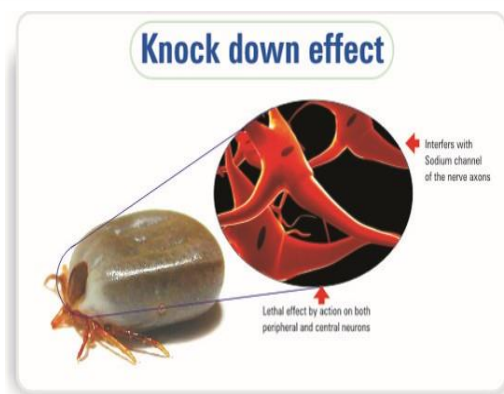
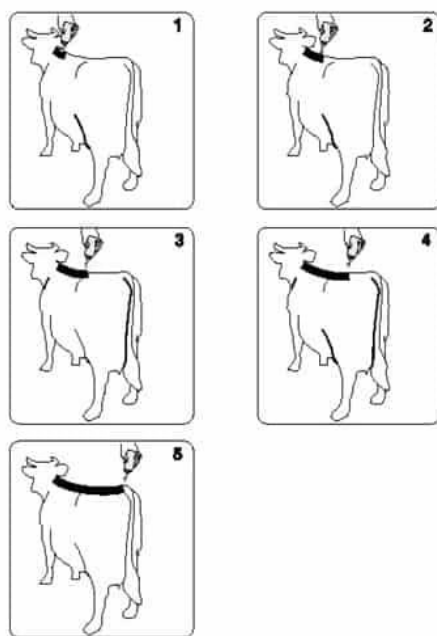
The cattle tick spends the parasitic stage of its life on one host and takes approximately 21 days during which it changes from a minute larva to a nymph and finally an adult. Adult females feed slowly for about a week, filling rapidly with blood at the end of that time. They then drop onto pasture, lay up to 3000 eggs and die. Later eggs hatch to produce larvae, which then infest the pasture until picked up by a suitable host or eventually die. The ticks are classified as one-host tick, two-host tick and three-host tick based on its life cycle. Common ticks in cattle include *Boophilus (Rhipicephalus) microplus*, *B.annulatus*, *B.sanguineus*, *Hyalomma anatolicum*, etc.

The control of tick infestation in cattle through the use of chemical acaricides is one of

the best methods routinely used. A wide range of acaricides, including chlorinated hydrocarbons, organophosphates, carbamates and synthetic pyrethroids are being used.

**Pour-on formulations:** a convenient way of application with less harmful effects and providing better efficacy. There is no need for dilution and spraying on whole body, can be applied directly evenly along the midline of the back from the front of the shoulder to the base of the tail. The common market pour-on preparations contain Flumethrin alone and Flumehttrin+ Piperonyl Butoxide (PBO) which is also effective against resistant ticks by inhibiting cytochrome P-450. The Benefit of Pour-on Anti-Tick preparations is as follows -

- a) Lipophilic property of molecule has special affinity towards lipids of skin, hence Flumethrin gets easily attached with skin surface.
- b) These preparations kill ticks through Knock Down Effect. This could be because of lethal activity of Flumethrin seems to involve action on both peripheral and central neurons of ticks.



### Case history and clinical findings

A two-week-old Sahiwal female calf is infested with ticks on dewlap, brisket, ears and inner thigh region. Pale CMM is noticed and the calf is active, feeding milk normally. The ticks were identified as *Rhipicephalus microplus* on examination.



### Treatment

- Flumethrin 1% Pour on solution @ 1ml/10kg BW is applied drop by drop along the midline of the back from front of the shoulder to the base of tail and dewlap area (severe infestation).
- Morning after the calf has suckled milk, it is properly restrained then Pour on solution is applied so that it does not lick the solution. Later in the evening before feeding milk, the calf is washed and let it dry.
- Sharkoferol syrup @ 3gm/day for 10 days is advised.



### Discussion and Conclusion

The preferred sites of ticks' attachment to infested animals were udders and external genitalia, then neck & chest, inner thighs, perineum, ears, around eyes. Cattle with lower resistance allow more ticks to survive. The hygienic conditions were improved along with treatment of infested cattle with Ivermectin (0.2 mg/kg b.wt, S/C) and spraying of Deltamethrin (1%) for surrounding environment twice every 14 days for control of tick infestation under field condition. Tick infestations were significantly differed ( $p < 0.05$ ) in relation to cattle breed, age and sex, as infestation rate was significantly higher in Friesian breed than balady



and cross, moreover, infestation rate was higher in older animals aged >3years followed by young calves 2 month and lowest in age 1-3 year (Nady et al., 2014).

The sex had also an influence on the tick prevalence, revealing higher in female cattle followed by male (Sen et al., 2012). Manan et al. (2007) found that resistance in the animals was building up as the age advances and the animals became more adaptable than in younger state. On the other hand, Islam et al. (2009) found that calves more susceptible to tick infestation 2.0 times. However, Kabir et al. (2011) detected that prevalence of tick was significantly ( $p < 0.01$ ) higher in local cattle (43.82%) than the crossbred (24.13%) cattle. Also found higher rate in summer followed by in winter season. Meanwhile, Stuti et al. (2008) reported that the animals were infested with ticks throughout the year, with maximum infestation during the rainy season then during summer and the least during winter. Sanjay et al. (2007) reported that tick infestation in cattle were higher in rainy followed by summer and winter, respectively. Khan et al. (1993) attributed an increase tick infestation during summer due to an increase temperature and humidity.

Infestation by *Rhipicephalus* and *Hyalomma* was lowered by the footbath treatment, and the effect on *Rhipicephalus* was strong and significant (permutation test,  $P = 0.004$ ), used concentrations being 1mL/1.5 L water for flumethrin, 1mL/2 L water for alpha-cypermethrin and 1mL/1 L water for deltamethrin, for the first charge as well as for refills. The final concentrations of active ingredient were 0.005% for alpha-cypermethrin and deltamethrin, and 0.004% for flumethrin. The animals were passed through the footbath in the evening after returning from grazing (Stachurski and Lancelot, 2006).

Severely infested calves are susceptible to late winter mortality and moderate infestations exacerbated by secondary parasitic infestations in winter lead to poor body condition. Hemorrhagic anemia caused by parasites occurs when the balance between blood loss and production is not maintained and calves are unable to compensate for blood loss. The protein loss estimates indicate that the potential for hemorrhagic anemia is greatest in weeks 4 – 6 (Anthony et al., 2007).

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