



ISSN: 2456-2912

VET 2024; 9(1): 1139-1142

© 2024 VET

www.veterinarypaper.com

Received: 12-10-2023

Accepted: 16-11-2023

Ratnaprabha

Assistant Professor, Department of Livestock Farm Complex, KVAFSU, Veterinary College, Gadag, Karnataka, India

Mahadevappa D Gouri

Assistant Professor and Head, Department of Livestock Farm Complex, KVAFSU, Veterinary College, Gadag, Karnataka, India

Dharmaraj GY

Assistant Professor, Department of Livestock Farm Complex, KVAFSU, Veterinary College, Gadag, Karnataka, India

Control and management of tick infestation in livestock farms

Ratnaprabha, Mahadevappa D Gouri and Dharmaraj GY

Abstract

Tick infestation is the major problem in Livestock farms and it causes severe economic losses, the present study was carried out in the department of Livestock Farm complex, Veterinary College Gadag. Twenty seven animals in the farm were subjected to the experiment; these had severe tick infestation, shown signs of itching, reduced feed intake, restlessness and continuously rubbing their bodies against the wall and trees in the open paddock. All the animals were sprayed with BSS (Body spraying solution), the same procedure was repeated once in 15 days for two months thereafter once in 3 months, the insecticide solution (IS) was sprayed using the sprayer pump inside the animal shed and floor where animals were housed. The similar procedure was repeated once in a month for three months, thereafter once in 6 months / twice in a year. In the present study it was observed that combination of IS and BSS were found to be more effective in controlling of tick infestation in farm animals.

Keywords: Tick infestation, insecticide solution, body spraying solution, restlessness

Introduction

Tick infestation is the major problem in Livestock farms and it causes severe economic losses by affecting the productivity and animal welfare. Ticks have an adverse effect on livestock in terms of blood loss, decrease in body weight, damage to the hides, udder and reduction in milk yield. Ticks can be major cause for spread of many diseases in both animals and human beings. Ticks act as vectors for Protozoans, rickettsiae, bacteria and viruses (Jongejan and Uilenberg, 2004) [7] such as Babesiosis, theileriosis, anaplasmosis, dermatophytosis and myiasis (Scholtz *et al.*1991) [8]. The economic losses due to the diseases transmitted by the ticks (Garcia, 2003) [9], and depreciation in the value of skin and hides (Biswas 2003) [2], Ticks also decreases the fertility rate causes hindrance in production (FAO, 2004) [5].

In India using of synthetic acaricides to control tick infestation is common. However complete reliance on any one method of tick control is not efficient; as reoccurrence of the parasites is more common, hence the current study was carried out prevent the menace of tick infestation in the livestock farm.

Materials and Methods

Method of preparation and application

The present study was conducted out in the department of Livestock Farm complex, Veterinary College Gadag. Tick infestation was diagnosed based on the visualization of ticks on the body of an animal (Plate 2b).

Disinfection of livestock shed

Insecticide solution (IS) was prepared by mixing 100 ml of Thinner solution (turpentine, acetone, naphtha, toluene, and, of course, mineral Spirits) used for dilution of paints, 100 g of CaCO₃ (Chuna) in one liter of fresh water or tap water (Plate 1a). The mixture thus formed was stirred continuously for five minutes till the Thinner solution and CaCO₃ dissolves completely, so as to make it more homogenized (Plate 1b). To this mixture 6ml of Deltamethrine (Butox® Vet with Deltamethrin – 12.5 mg / ml) was added and again mixed thoroughly (Plate 1c). The completely mixed preparation was used for spraying.

Corresponding Author:

Ratnaprabha

Assistant Professor, Department of Livestock Farm Complex, KVAFSU, Veterinary College, Gadag, Karnataka, India

The prepared insecticide solution is sprayed using the sprayer pump inside the animal shed and to the floor and all the places where animals were housed (Plate 1c, d, e & f). The animals were not housed for at least 12 hours after spraying the insecticide solution. The similar procedure was repeated once in a month for three months, thereafter once in 6 months / twice in a year.

Control of ticks on the animal body

To prevent ticks on the body of animals, body spraying solution (BSS) was prepared by dissolving 4 ml Deltamethrine in one liter of water as per the recommendations of the company. The solution was sprayed all over the animal body, until it gets completely wet including the entire foots and tail switch. All the animals applied with the Deltamethrine solution were allowed to stand for under partial shaded sunlight till their body gets dry (Plate 2a). The same procedure was repeated once in 15 days for two months thereafter once in 3 months for effective control over tick menace.

Results and Discussion

Twenty seven animals maintained in the farm were subjected to the experiment. These animals had severe tick infestation, itching, reduced feed intake, restlessness and continuously rubbing their bodies against the wall and trees in the open paddock where animals were let out. Ticks were observed all over the body, particularly near neck, ear, crotch, base of the tail regions and inguinal area (Plate 2b). The animals treated

with body spraying solution (BSS) therapy showed significant reduction in the tick infestation after 24 hr, of application of BSS. Then onwards the gradual decrease in tick population was observed till one week. On 15th day second dose of application of BSS was done following the first application, drastic reduction in tick population was observed. Third application of BSS after 30th day after fist application, population ticks were almost nil (Plate 2c). Thus for effective control the fourth application of BSS on 45th day was carried out. With these method of application by use of Body Spraying Solution along with disinfection of livestock shed as mentioned in the methodology was found to be more effective when compared to the available conventional methods.

These findings were in agreement with Pedretti (2014), who observed that insects and mites need oxygen just like any other animal. Oil kills them by clogging pores that delivers oxygen. Ponnusamy and Devi (2017) ^[10] reported similar findings in northern part India.

In the current experiment it was observed that the cross breeds showed higher rate of tick infestation when compared to indigenous / Desi cattle breeds and non-descripts desi breeds. These results supported the findings of DeCastro and Newson (1993) ^[4]. Zebu cattles are resistant to tick infestation compared to crossbred / European cattles, this may be due to thick movable hides covered with short straight hair in zebu cattles as compared to crossbred / European cattles (think skin and covered with wooly hair) (Hungerford, 1990; Bonsma 1983) ^[6, 3].



(a)



(b)



(c)



(d)



(e)

(f)

Plate 1: Preparation of Insecticide Solution (IS): Mixing of CaCO_3 (Chuna) in the water (a), Addition of thinner with continuous stirring (b), Addition of Deltamethrine to the mixture (c), Filling insecticide solution in to the spraying can / machine (d) and Spraying Insecticide Solution to the walls of manger and shed (e & f).



(a)

(b)



(c)

Plate 2: Application of Body Spray Solution to the animals: Spraying of Body spraying solution on the animal (a), Animal infected with tick infestation before insecticide solution application (b) and Condition of the animal after application of BSS (c).

Conclusion

In the present study, it was observed that spraying the animal premises with Insecticide solution (IS) and application of Body spraying solution (BSS) to the animals' body was effective in management and control of tick infestation in farm animals.

References

1. Barnett SF. The control of ticks on Livestock. Rome, Italy: Food and Agriculture Organization of the United Nations; c1961.
2. Biswas S. Role of veterinarians in care and management during harvest of skin in livestock species. In: Proc. National Seminar on Leather Industry in Today's Perspective, Kolkata, India; c2003. p. 62-64.

3. Bonsma J. Livestock Production: A global approach. Delhi, India: CBS Publishers and Distributors; c1983. p. 45-46.
4. DeCastro JJ, Newson RM. Host resistance in cattle tick control. *Parasitol Today*. 1993;9:13-17.
5. FAO. Mechanisms of acaricides resistance management and integrated parasite control in ruminants- guidelines, Module I-Ticks, Acaricide Resistance, Diagnosis, Management and Prevention. Rome, Italy; c2004.
6. Hungerford TG. *Hungerford's Diseases of Livestock*. 9th ed. Sydney, Australia: McGraw-Hill Book Co.; c1990.
7. Jongejan F, Uilenberg G. The global importance of ticks. *Parasitology*. 2004;129:1-12.
8. Scholtz MM, Spickett AM, Lombard PE, Enslin CB. The effect of tick infestation on the productivity of cows of three breeds of cattle. *Onderstepoort J Vet Res*. 1991;58:71-74.
9. Garcia SM. The ecosystem approach to fisheries: issues, terminology, principles, institutional foundations, implementation and outlook. Food & Agriculture Org.; c2003.
10. Ponnusamy K, Devi MK. Impact of integrated farming system approach on doubling farmers' income. *Agricultural Economics Research Review*. 2017;30:347-2017-2750.