

EFFICACY OF DIAZINON AGAINST MANGE IN SHEEP

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Abstract: Efficacy of diazinon (Neocidol) was evaluated through spray application of 0.15% aqueous solution against naturally infested sarcoptic, psoroptic and chorioptic mange in 46 sheep. It cured 44, 87.5 and 100% cases of chorioptic mange after first, second and third applications, respectively. Efficacy against psoroptic mange was 40, 80 and 93% percent respectively while the efficacy against sarcoptic mange was found to be 33 and 100% after two consecutive applications. No side effects were observed after treatment with diazinon. The untreated control group remained positive for mange throughout the course of treatment.

INTRODUCTION

Sheep is an economically important animal to a vast number of landless rural population and marginal farmers of Pakistan. Out of 1.100 million sheep in the world, 35.41 million sheep are located in Pakistan (FAO, 1990). Among the many diseases to which these animals are prone to suffer, mange is the commonest. It is a dermatological problem caused by mites belonging to order Astigmata of class Arachnida. *Sarcoptes scabiei* (Family: Sarcoptidae), *Psoroptes ovis* and *Chorioptes ovis* (Family: Psoroptidae) are the mites mostly responsible. (Sweatman, 1958; Service, 1980). These parasites pierce the skin to suck lymph and may also feed on the young epidermal cells. The itching and scratching causes inflammation of the skin and is accompanied by an exudate which coagulates and forms crusts. Excessive keratinization and proliferation of connective tissue thickens and wrinkles the skin also causing the hair to fall out. This disease is prevalent in cold weather but spreads slowly during summer months (Rathore and Lodha, 1973). The impact of the mange in sheep is on their general health, growth and productivity. It is known to cause 30 percent loss in weight (Kirkwood, 1980) besides the loss in wool. Keeping in view the importance of this malady, the affected sheep were treated with 0.15% solution of diazinon (Neocidol) in order to test its efficacy.

MATERIALS AND METHODS

A total of 46 sheep naturally infested with Psoroptic, Chorioptic and Sarcoptic mange at Muridke and Sadoke near Lahore were used in this study. Of these, 13 animals were kept as untreated control. All these animals were kept under similar feeding and environmental conditions throughout the course of the treatment. The study was conducted during late winter months.

Collection and examination

Besides the clinical signs, skin scrapings collected in 10 percent potassium hydroxide were examined for mites and their eggs. The mites were identified from their

characteristic morphology (Maharat and Ruesel, 1978; Soulsby, 1982).

Psorotic mange

Fifteen animals (6 months to 5 years) naturally infested with *Psoroptic ovis* were used in this study. In 12 animals lesions were distributed all over the woolly parts of the body. These animals were divided randomly into two groups *i.e.* A1 and A2. First group (A1) contained 12 animals while second group (A2) comprised of 3 animals which served as untreated control.

Chorioptic mange

Sixteen animals naturally infested with *Chorioptic ovis* ranging between 7 months to 4½ years were used in this study. Lesions were distributed on the hind legs between toes and on the scrotum of rams. These animals were randomly divided into two groups *i.e.* B1 and B2. Group B1 comprised of 11 animals while group B2 consisted of 5 animals which acted as untreated control.

Sarcoptic mange

Fifteen animals with age ranging between 6 months to 5 years were used in this study. These animals were naturally infested with *Sarcoptic mange*. Lesions were distributed on non-woolly parts of the body especially head and face. These were divided randomly into two groups C1 and C2. Group C1 comprised of 10 animals while group C2 consisted of 5 animals which served as untreated control.

Acaricide used

Diazinon (*Neocidol-R*, Ciba Geigy) at a concentration of 0.15 percent in water was used. Three spray applications were given at an interval of 7 days on each occasion. Building and bedding were also sprayed with the same concentration of diazinon for making the surroundings free from mites. General safety instructions were also followed as described by USDA (1980).

Assessment criteria

All the mange infested sheep in group A1, B1 and C1 were sprayed with diazinon at a concentration of 0.15 percent and were constantly observed daily for clinical improvement and for frequency of rubbing or scratching of the body. The skin scrapings were examined on 7th, 14th and 21st day of treatment. The scrapings were processed as per technique used by Magee (1974). Negative skin scrapings, subsidence of lesions, stopping of itching and smoothing of skin surface were taken as criteria to evaluate the efficacy of diazinon.

RESULTS AND DISCUSSION

The results of the skin scrapings observed microscopically at different days before and after treatment with diazinon are presented in Table-1.

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Table 1: Efficacy of diazinon against Mange

Type of mange	Animals cured (%) after treatment		
	1st (n=15)	2nd (n=15)	3rd (n=15)
Psoroptic	40	80	93
Chorioptic	44	87.5	100
Sarcoptic	33	100	-

The lesions showed signs of healing within 7-15 days. Thereafter, rubbing and scratching of the body stopped completely, while mild lesions were noticed in one animal treated for Psoroptic mange. On day 21 no live mites or eggs were present in the skin scrapings except in one animal. No side effects were observed after spraying the animals infested with Psoroptic, Chorioptic and Sarcoptic mange with 0.15 percent watery solution of diazinon. The lesions in the untreated sheep (A2, B2, C2) become more extensive, itchiness continued unabated and they remained positive for mange throughout the course of study.

The present results on the efficacy of diazinon against Psoroptic, Chorioptic and Sarcoptic mange of sheep confirmed the earlier observations (Kirkwood and Quick, 1981; Milic *et al.*, 1985; Rosa and Lukovick, 1970; Blanchflower *et al.*, 1990). Thus diazinon can be recommended for safe treatment of mange in sheep with no side effects.

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