

ANTHELMINTIC RESISTANCE IN TRICHOSTRONGYLIDS OF SMALL-HOLDER SHEEP PRODUCTION SYSTEM IN SOME AREAS OF HARYANA

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ABSTRACT

Anthelmintic resistance was investigated using the faecal egg count reduction test in sheep flocks of three villages of Bhiwani district and four villages of Jind district of Haryana during 2004-05 involving 547 sheep owned by small-holder landless shepherds. The anthelmintics used in these trials were fenbendazole and tetramisole hydrochloride, both of which have been in use for over last 25-40 years. Resistance was accepted if the post-treatment per cent reduction in egg count was less than 95% in the treated group as compared to the control group and secondly the 95% confidence level was less than 90%. Out of the seven flocks of sheep, trichostrongylids of the five flocks showed resistance to fenbendazole and six flocks to tetramisole hydrochloride. The predominant parasite species, detected by the larval cultures, was *Haemonchus contortus* (80%) followed by *Trichostrongylus* (17%) and rest of the parasites were *Bunostomum* and *Strongyloides*.

Key words: Anthelmintic resistance, sheep, faecal egg count reduction test, Haryana state

Majority of the sheep population in Haryana is owned by small-holder landless shepherds of low socioeconomic strata practising traditional extensive sheep rearing by exploiting local natural resources. Although anthelmintic treatment is given to such flocks in the event of clinical parasitic gastroenteritis, yet most of the anthelmintic resistance trials have been reported from the organized farms (Yadav, 1990, Yadav *et al.*, 1995, Singh *et al.*, 1996, Singh and Yadav, 1997, Swarnkar *et al.*, 1999, Gupta *et al.*, 2003) and thus the status of such rural flocks remained unknown. Parasitic gastroenteritis caused by nematode infections is a common condition of small ruminants in India. Common parasites involved are *Haemonchus*, *Trichostrongylus*, *Strongyloides*, *Bunostomum*, *Gaigeria*, *Oesophagostomum*, *Trichuris* (Gupta *et al.*, 1988). The mainstay of the disease control is use of anthelmintics. However, their indiscriminate use has resulted in development of multiple resistance as it threatens the survival of small ruminant farming (Sanyal, 2004). Two most commonly used anthelmintics are fenbendazole and tetramisole hydrochloride

which were assessed for their anthelmintic resistance status in this study.

MATERIALS AND METHODS

Between October 2004 and June, 2005, a survey was undertaken in Bhiwani and Jind districts of Haryana to assess anthelmintic resistance against trichostrongylids in sheep. The sheep flocks were raised by open grazing on the common pastures, wastelands, fallow lands, reserved lands on both sides of roads, canals etc. The drugs assessed for the resistance viz. fenbendazole and tetramisole hydrochloride, were being used by the shepherds in this area for the last 25-40 years. The dosages given were as recommended by the manufacturers.

Faecal samples of sheep from various villages of the two districts were collected, processed quantitatively and checked for their parasitic burden and suitability for the trial by finding out eggs per gram of faeces (e.p.g.) using the modified McMaster Technique (MAFF 1977). A total of seven flocks, each having more than 150 e.p.g., were selected for the trial. Four trials were conducted in Danoda Khurd, Rajpura Bhain, Dablain and Jajanwala villages of district

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