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Authors: D. Singh, C.P. Swarnkar, F.A. Khan

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Epidemiology of gastrointestinal parasites and impact of two anthelmintic treatment systems in sheep flocks of arid and semi-arid Rajasthan

D. Singh, C.P. Swarnkar, F.A. Khan*

Division of Animal Health, ICAR-Central Sheep and Wool Research Institute, Avikanagar- 304501 Rajasthan

*Corresponding author
E-mail address: fakhan1962@yahoo.com

Highlights

- Present study demonstrated the relevance of epidemiology based scheme for the management of GI parasites.
- In Rajasthan, favourable period for translation of predominant GI nematode (*Haemonchus contortus*) exists from early-June /July to mid-September.
- Almost similar magnitude for monthly incidence of strongyle worms among flocks given either modified (1 drench/yr) or conventional (2-3 drenches/yr) anthelmintic treatment.
- The seasonal intensity of strongyle infection was significantly (P<0.001) higher during monsoon in CWMP flocks of both the regions.
- Significantly higher pasture larval burden was recorded during July to September in both the regions.
- Among other GI parasites, only infection with amphistomes was found endemic particularly in semi-arid region.
- Reduced anthelmintic frequency in modified scheme had no adverse effect on flock performance.
- Modified worm control approach provides better opportunities for gainful interaction between epidemiology, weather and management of flocks, reduced anthelmintic drench frequency, better rotation of anthelmintic types and unwanted expenditure incurred by farmer on anthelmintics.

ABSTRACT

Comparative epidemiology of gastrointestinal (GI) parasites and economic impact of two anthelmintic treatment systems (conventional and modified) in naturally infected sheep flocks were studied in arid and semi-arid Rajasthan. From April 2004 to March 2016, sheep flocks (376) were evaluated for GI parasites by examining 79311 faecal samples and monitored for performance in two anthelmintic treatment systems. Period from July to mid-September in arid and from early-June to mid-September in semi-arid Rajasthan was found suitable for translation of predominant GI nematode (*Haemonchus contortus*). The monthly incidence of strongyle nematodes showed almost similar trend among flocks given either modified (1 drench/yr) or conventional (2-3 drenches/yr) anthelmintic treatment. Significantly (P<0.001) higher pasture larval burden