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Efficacy of two anthelmintics against gastrointestinal nematodes of sheep in the silvopastoral zone of Senegal, Mali and Burkina Faso

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Gastrointestinal nematodes (GIN) are a major impediment to sheep health and productivity. Frequent use and under dosing of chemical anthelmintics (AH) have led to the development of GIN populations which are resistant to these drugs in many parts of the world. In West Africa, the importance of GIN infections in sheep is poorly documented and the potential problem of AH resistance is neglected.

We therefore conducted an on-farm study to determine the efficacy of two AH (Albendazole and Ivermectine) that are frequently used in Mali, Burkina Faso and Senegal, the focal countries of the EU-funded project SustainSahel. Sheep carrying natural GIN infections were selected from another study on GIN prevalence and infestation intensity. In each country, 24 male sheep with a minimum faecal egg count of 500 eggs per gram were selected for the efficacy study. Sheep were randomly allocated to 3 treatment groups of 8 animals: Ivomec® (Ivermectin), Valbazen® (Albendazole), and Control (without treatment). AH doses were administered according to the manufacturers' instructions after weighing the animals, namely Valbazen (oral) at 7.5 mg kg⁻¹ body weight, Ivomec (subcutaneous) at 0.2 mg kg⁻¹ body weight. The faecal

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egg count reduction test (FECRT), as recommended by World Association for the Advancement of Veterinary Parasitology, was used to determine anthelmintic efficacy. For Ivomec®, FECR were 97 %, 95 % confidence interval (CI) (89%-100 %); 97 %, CI (93%-99 %) and 56 %, CI (24%-76 %) in Burkina Faso, Mali and Senegal, respectively. These results point to AH resistance of GIN to Ivermectin in Burkina Faso and confirm resistance to this drug in Senegal. In Mali, however, ivermectin did not show reduced efficacy. For Valbazen®, FECR were 99 %, 95 % CI (96%-100 %); 100 %, CI (99%-100 %) and 75 %, CI (43%-90 %) in Burkina Faso, Mali and Senegal, respectively. This corresponds to full efficacy of Albendazol in Mali and Burkina Faso and AH resistance in Senegal.

We conclude that GIN resistance to both anthelmintics is present in the study region. The use of alternative treatment options, such as by secondary plant metabolites, could be a future control option to reduce the progress of resistance towards allopathic anthelmintics.

Keywords: Anthelmintic efficacy, faecal egg count reduction test, gastrointestinal nematodes, West Africa.