Administration of long-acting moxidectin to pre-pubertal ewe-lambs results in improved reproductive performance

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Objective: Objective was the evaluation of reproductive effects after one administration of a long-acting antiparasitic (moxidectin 2% LA, dose rate: 1 mg per kg bodyweight) to pre-pubertal ewe-lambs at the beginning of the reproductive season. The study was performed in Greece (latitude N 36° 26') in a flock free from brucellosis, Chlamydophila infection and toxoplasmosis.

Methods: In total, 45 animals, naturally infected with trichostrongylids, were allocated into treated (n= 30, treatment with moxidectin 2% LA, carried out on the 21st June, [D0]) or control (n=15, untreated) group. Rams of confirmed fertility, were introduced from the 15th August [D55] to the 20th December [D182] into the ewe-lambs. Throughout the study, epg counts of ewes were monitored. Reproductive performance of ewes was assessed.

Results: Up to D112, arithmetic mean epg counts in treated animals were 0 epg; thereafter and up to D350, they were 23 to 473 epg. Respective figures for control animals throughout the study were 190 to 977 epg. Reproductive performance parameters were calculated as follows, respectively for treated and control animals; median ‘Interval to first mating after ram introduction’: 36.5 d and 71.0 d (P=0.04); median ‘Age at first mating’: 8.5 m and 10.0 m (P=0.045); ‘Cycling rate’: 20.0% and 6.7% (P=0.03); ‘Mating rate’: 86.7% and 66.7%; ‘Return-to-oestrus rate’: 26.7% and 26.7%; ‘Abortion rate’: 3.3% and 0%; ‘Lambing rate’: 83.3% and 66.7%; ‘Total lambs born per ewe’ and ‘Liveborn lambs born per ewe’: 1.5 and 1.1 (P=0.01); ‘Stillbirth rate’ 0% and 0% and ‘Lamb bodyweight per ewe’: 5.0 kg and 3.8 kg (P=0.005).

Conclusions: Long-acting anthelmintic treatment of pre-pubertal ewes results to earlier reproductive activity and improved reproductive performance of the animals. Hence, it may be employed as a management strategy according to targets set in individual flocks.