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GASTROINTESTINAL HELMINTHS OF SMALL RUMINANTS IN BANAT (VOJVODINA, NORTH SERBIA)

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Abstract: Breeding of small ruminants represents a significant branch of livestock production. They are usually kept under extensive conditions and graze or brows on any land that is not being cultivated. Pasture breeding makes possible contact with eggs, larvae and intermediate hosts of parasites which was one of the main health problems of small ruminant. The study of biodiversity, season distribution and prevalence of gastrointestinal helminths infection of small ruminants performed during 2010 to 2020 in all region of Serbia. In our paper we presented result of examinations obtained in the North part of Serbia in Banat region (Vojvodina)

• Introduction:

- Vojvodina is situated in the northern part of Serbia in the southeast part of the Pannonia Plain, the plain that remained when the Pliocene Pannonia. The region is divided by the Danube and Tisa rivers into: Banat in the east, Bačka in the northwest, and Srem in the southwest. Banat is characterized by a Pannonian steppe-continental climate. Southern Banat is warmer than the northern half of the region. Temperatures exceed 40 °C, while in the Banat Sandstone they reach even 60 °C due to the heating of the sand. In the southeastern Banat, about 700 mm of precipitation falls annually, and in the northwestern Banat slightly less (600–670 mm). Agriculture is a priority sector in Banat. Traditionally, it has always been a significant part of the local economy and a generator of positive results, due to the abundance of fertile agricultural land which makes up 84% of its territory. Banat is rich in grasslands suitable for sheep and goat grazing.



• Material and method

- During our study performed in Vojvodina in period from 2014 to 2015, from Banat District we collected fecal samples from 97 herds of small ruminants (sheep and goats) totalling over 1,300 animals.
- Examination was performed using standard coprological technique with saturated NaCl solution and sedimentation. Eggs per gram count (EPC) and degree of infection we assessed by McMaster technique where EPC of 50-700 eggs we treated like low rate of infection, to 1100 like moderate and up 1100 like high. At same time we performed post-mortem examination of dead or slaughtered animals. In total we examined post mortem more than 374 animals. Found adult parasites we collected, persevered and determinate by morphological characteristic. Determination of adult parasites and parasites eggs we performed by its morphometric characteristic.

• Results and discussions

- During our examination infection with helminths, we occurred at 81.22% of sheep. With coprological examination we found eggs of next helminths genera: *Nematodirus sp.* (71.22%), *Ostertagia sp.* (69.22%), *Trichostrongylus sp.* (66.55%), *Haemonchus sp.* (64.44%), *Chabertia ovina* (60.11%), *Oesophagostomum sp.* (36.77%), *Marshallagia sp.* (29.66%), *Cooperia sp.* (27.88%), *Bunostomum sp.* (22.33%) and *Skrjabinema sp.* (13,66%).
- During post mortem examination we occurred: *Teladorsagia (Ostertagia) circumcincta* in 92.23% of animals, *O.ostertagi* (31.33%), *O.occidentalis* (12.33%), *Trichostrongylus axei* (98.60%), *T. colubriformis* (91.57%), *Nematodirus spathiger* (100.00%), *N. filicollis* (22.31%), *Haemonchus contortus* (89.95%), *Marshallagia marshalli* (31.77%), *Skrjabinema ovis* (11.28%), *Bunostomum trigonocephalum* (15.28%), *Chabertia ovina* (69.14%), *Oesophagostomum venulosum* (24.39%), *Cooperia curticei* (50.52%), *C. oncophora* (7.29%) and *C. punctata* (2.26%).
- The intensity of infection and polyparasitism was monitored in relation to the age of sheep and goats. It was found that in younger animals' intensity of infection was lower than that of older animals. The infective rate of each of these parasites showed that the most of it followed the same general pattern, having a peak in the spring and another in the autumn, separate by a trough during the hot dry summer period when the infection rate was low. During our research, the order of occurrence of the identified species of gastrointestinal strongylids was as follows:
- - in March: *Teladorsagia (Ostertagia) circumcincta*, *Ostertagia ostertagi*, *Trichostrongylus colubriformis*, *Nematodirus filicollis* and *N. Spathiger*, in May: *Ostertagia occidentalis*, *Trichostrongylus axei*, *Bunostomum trigonocephalum* and *Chabertia ovina*; in June: *Skrjabinema ovis* in July: *Haemonchus contortus*, *Cooperia curticei*, *C. punctata*, *C. oncophora* and *Oesophagostomum venulosum*; in November: *Marshallagia marshalli*
- Species from the genera *Ostertagia*, *Trichostrongylus* and *Nematodirus* were present after the first appearance throughout the entire research period. Our research showed that *Haemonchus contortus* was found in animals during the warmer period, and *Marshallagia marshalli* during the colder period of the year.

• Conclusions

- Based on our research in Banat District diseases of parasitic etiology dominate in sheep and goats both in terms of prevalence and incidence. This is influenced by the way of holding and climatic factors in the area. The damage that occurs in this production is a consequence of the negative pathogenic effects of the parasite on the host organism and negative economic effects to production results.
- Therefore, it is necessary to implement a regular program of parasitological control of the herd, which should be carried out before releasing it to pasture and during grazing, as well as regularly deworming the all animals in herd