Field Survey on the Efficacy of Four Anthelmintic Drugs Against Horse Cyathostomin Infection in Europe

Donato Traversa, DVM, PhD, Diplomate EVPC; Piermarino Milillo, DVM, PhD; Helen Barnes, DVM; Georg von Samson-Himmelstjerna, DVM, PhD, Diplomate EVPC; Sandra Schurmann, DVM; Riccardo Lia, DVM, PhD; Stefania Perrucci, DVM, PhD, Diplomate EVPC; Antonio Frangipane di Regalbono, MSc, PhD; Paola Beraldo; Janina Demeler, DVM; Rami Cobb, DVM; and Albert Boeckh, DVM

In many European countries, a single-dose use of fenbendazole and/or pyrantel is virtually ineffective against cyathostomins, and the loss of efficacy of ivermectin is likely spreading. Authors' addresses: Faculty of Veterinary Medicine, University of Teramo, 64100, Italy (Traversa, Milillo); Fort Dodge Animal Health, Southampton SO304QH, United Kingdom (Barnes); University of Veterinary Medicine, Hannover, D-30559, Germany (von Samson-Himmelstjerna, Schurmann, Demeler); Faculty of Veterinary Medicine, University of Bari, Valenzano, 70010, Italy (Lia); Faculty of Veterinary Medicine, University of Pisa, 56126, Italy (Perrucci); Faculty of Veterinary Medicine, University of Padua, Legnaro 35020 Italy (Frangipane di Regalbono); Faculty of Veterinary Medicine, University of Udine, Italy (Beraldo); and Fort Dodge Animal Health, Princeton, New Jersey, 08543, (Cobb, Boeckh); email: dtraversa@unite.it. © 2009 AAEP.

1. Introduction
In the past, the selection pressure generated by erroneous use or even abuse of anthelmintics has lead to the spread of drug-resistant parasitic populations. This is particularly true for horse cyathostomins; recent evidence of reduced efficacy has been reported in Europe, the United States, and Latin America.

2. Materials and Methods
To increase knowledge of the efficacy of major anthelmintics (i.e., fenbendazole, pyrantel, ivermectin, and moxidectin) currently used in Europe, 1704 horses were evaluated: 988 horses from 60 properties in Italy, 396 horses from 22 properties in the United Kingdom, and 320 horses from 20 properties in Germany. Four or more cyathostomin-infected horses were allocated to each treatment group. Fecal samples were collected on the day of treatment and 14–16 days after treatment for the egg-count reduction test.

3. Results and Discussion
A fecal egg-count reduction (FECR) <90% after treatment with fenbendazole was observed in 36% (Italy),...
88.2% (United Kingdom), and 76.9% (Germany) of the examined properties. A FECR <90% after treatment with pyrantel was observed in 31.6% (Italy), 18.1% (United Kingdom), and 25% (Germany) of the examined properties. The efficacy of ivermectin was <90% at one property in the United Kingdom (4.5%) and one property in Italy (1.6%), whereas moxidectin was 100% effective at all properties but one in Germany. It is necessary for practitioners to take a leading role in preserving the efficacy of the active anthelmintics by measures such as selective treatments or drug rotations.