the two published EU - directives (2001, 2006) which aim at performing diagnostic steps before treatment and reducing the use of drugs. Highly relevant are the findings that on average more than 40% of adult horses (>4 years) either did not show any strongyle egg output at all, or egg counts below the defined treatment threshold level of 200 EpG, i.e. the number of anthelmintic treatments could be significantly reduced. On some farms the reduction was more than 60% when compared to the previous strategic treatment schedules, since only those horses are treated which considerably contribute to the pasture contamination. Furthermore, the number of horses which had to be treated in the 2nd year of SAT - according to the threshold level contamination. Furthermore, the number of horses which had to be treated in the 2nd year of SAT - according to the threshold level - significantly decreased in a specifically designed study, suggesting that the number of treatments can possibly be further reduced with time. An appropriate SAT procedure includes at the same time the evaluation of the prevalence of Strongylus vulgaris and the status of AR, resp. In-depth spectrum analyses in Germany and Switzerland revealed S. vulgaris prevalences of < 2%. Preliminary results show that horses < 4 years cannot be treated according to the same schedule. However, preliminary data from monitoring programs on stud/foal keeping farms provide some indications that a SAT approach might be possible when considering a different threshold level, the occurrence of P. equorum and the additional work for sample collection. Analyzing more than 2500 fecal samples from 303 horses has clearly shown the existence of a repeatability of fecal egg counts (FEC) over time by the identification of so-called high and low egg-shedders. Statistical analyses have proven a significant within-horse-repeatability. This further supports the idea that FECs can be used as a solid basis for resulting treatment decisions in adult horses.

078 Parasite control on thoroughbred studs

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Intestinal nematode infections can result in substantial impact on health, welfare and performance of thoroughbreds (TB). Amongst these parasites are the cyathostomin, immunity to which is incomplete and Parascaris equorum, which can cause severe disease in youngstock; meaning life-long nematode control is required in horses. Control is primarily achieved by anthelmintic administration but decades of intensive anthelmintic usage, whilst reducing prevalence of some parasites (e.g Strongylus vulgaris) has promoted widespread resistance; particularly in cyathostomins and Parascaris equorum. The aim of this project is to identify parasite control practices on TB studs within the UK, assess comparative clinical impact between interval (intensive) and targeted (diagnostic based) deworming strategies and determine drug efficacy on a subset of TB studs. Nine TB studs have undergone in-depth interviews and bespoke drug efficacy testing based on their anthelmintic use, control strategies and clinical disease concerns. The centrifugal flotation faecal (CF) egg counting (FEC) technique, sensitive to 1 egg per gram (egg), was used to detect strongyle-type and P. equorum eggs. On studs where >10 animals showed >50epg (strongyle), faecal egg count reduction tests (FECRT) were performed using WAAPP guidelines to determine resistance status for pyrantel (PYR), <90% reduction, and ivermectin (IVM) and moxidectin (MOX), <95% reduction. Egg reappearance periods (ERP) were defined as when group arithmetic mean FEC post-treatment exceeded 10% of group FEC arithmetic mean pre-treatment when sampled weekly (stud B only) or fortnightly. Larval culture and morphological identification of strongyle third-stage larvae was performed from pre- and post-treatment samples. FECRT and ERP for all three major classes of anthelmintic; PYR, IVM and MOX were carried out on eight studs. Due to a high incidence of clinical disease on one stud, double centrifugal sugar flotation, CF and antibody detection ELISA tests were used to detect tapeworm (Anoplocephala perfoliata) infection. On stud B youngest YS (n=7) PYR efficacy was 91.8%, ERP = 3 weeks, and in mares (n=8) mares it was 97.7%, ERP = 4 weeks; stud D only YS (n=31) were tested and showed resistance to PYR (reduction = 60%), sensitivity to IVM (99.98%) but borderline efficacy to MOX (94.57%; with ERP reduced to 4 weeks); on stud F resistance to PYR was detected (n=23 YS, n=13 mares) with reductions of ~8.24% and 76.96% respectively, IVM and MOX efficacy were 100% but ERPs were shortened in YS to 6 weeks (IVM) and 8 weeks (MOX); stud G showed PYR resistance in YS (n=18, 47.42% reduction) and borderline in adults (93.39%, n=3).Studies H and J are under currently under analysis. Most YS show reduced FECRT compared to adults on the same farm for the same drug; ERP periods for all drugs were reduced, with the most concerning being reductions to 4 and 8 weeks for MOX on farms with historical intensive avermectin usage.

099 Evaluation of Baermann apparatus sedimentation time on recovery of third stage Cyathostominae, Strongylus vulgaris and S. edentatus larvae from equine coprocultures

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Conventional diagnosis of equine Strongylinae infections requires culturing of eggs within feces to the infective, third larval stage for morphological identification. Standard protocols involve incubating the culture media for ~14 days and subsequently sedimenting for ~24 hours in a Baermann apparatus before harvesting larvae and morphologically identifying them under the microscope. This traditional method is plagued by low negative predictive values, and larval recovery rates are highly variable. This study evaluated the effect of 12, 24, and 48 hours of sedimentation time within a simple Baermann apparatus on larval recovery by collecting and examining the traditional sedimentation faecal (CF) egg containing the usually discarded, remaining fluid contents of the same apparatus. Utilizing feces from two mares residing in the parasitology research herd at the University of Kentucky’s Maine Chance Farm, harboring a well described gastrointestinal parasite community, 45 coprocultures were performed. This yielded 90 total sediment samples, and a grand total of 147,482 larvae were recovered and examined. Duration of sedimentation did not significantly influence total larval recovery. Significantly more Cyathostominae and Strongylus vulgaris larvae were recovered from sediment 1 at all durations of sedimentation, comprising ~70% and ~95%, of total recovered larvae, respectively. Thus, the need for collection and examination of the remaining fluid contents of the Baermann apparatus is obviated when performing coprocultures for general Cyathostominae recovery or for diagnosis of S. vulgaris infections as increased sedimentation duration did not result in increased total larval recovery or a higher percentage of larvae recovered in sediment 1. However, less than 60% of all S. edentatus were recovered from
Cyathostomins are the most clinically important endoparasites of equids. Emergence of the encysted larvae from the intestinal mucosa causes a potentially fatal illness, known as larval cyathostomosis, characterized by intestinal inflammation, diarrhea, weight loss, and colic. Numerous studies have shown high levels of resistance present in cyathostomin populations against benzimidazoles and tetrahydropyrimidines. Thus, the macrocyclic lactone class is left as the only efficacious treatment for cyathostomine infection, and signs of emerging resistance have been reported for this drug class as well. Evidence towards resistance reversal comes from a five year simulation study in New Zealand regarding combination deworming in sheep. It found that the resistance to individual anthelmintics decreased when the parasites were treated with combination drugs for several years. The goal of the present study was to provide information regarding the efficacy of combination deworming against equine cyathostomin parasites where resistance to both benzimidazole and the tetrahydropyrimidin type drugs already exists. Prior to each anthelmintic treatment, the ponies were weighed on an electronic scale and a fecal sample was collected. Post-treatment samples were collected every two weeks for eight weeks. All samples have been processed using the mini-FLOTAC technique.

An eight-week clean out period will follow each treatment. The beginning of the study was dedicated to providing a baseline efficacy total S. edentatus recovery. S. edentatus larvae may be more mobile than other species and capable of swimming above the traditional sediment 1 for a prolonged period of time; Therefore, collecting and examining the entire contents of the Baermann apparatus is necessary when desiring an increased diagnostic sensitivity and negative predictive value in diagnosing S. edentatus infections while traditional methods are adequate for S. vulgaris diagnosis and Cyathostominae recovery. Although there is a need for future research to evaluate the risk of selection bias at differing sedimentation times among individual cyathostomin species and to determine more appropriate techniques for S. edentatus recovery, these data will allow researchers and practitioners to make more informed decisions in choosing appropriate larval recovery techniques, balancing recovery, time, and effort.

101 Combination Deworming- a solution or exacerbation?

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Ascarid parasites pose a significant threat for small intestinal impaction and rupture. The post-surgical long-term survival is reported in the range of 9-60%. Anthelmintic treatment has been identified as a significant risk factor for these impactions, and there is a need for identifying foals infected with large burdens prior to treatment. However, ascarid egg counts suffer from a low negative predictive value and do not correlate with the worm burden, so they cannot reliably detect a heavy infection. Ultrasonography represents a diagnostic imaging modality frequently applied in clinical case work-ups. However, it has not yet been evaluated as monitoring technique in otherwise healthy foals. This study aimed to develop and evaluate a transabdominal scoring technique for the assessment of ascarid parasites present in the small intestine of naturally infected foals. Ten foals underwent biweekly repeated transabdominal ultrasonographic examination over the course of 6 months. Ascarid parasites appear as highly echogenic structures with the cuticle forming characteristic double parallel lines (Fig. 1). A scoring system was developed going from 1 through 4, with 1 representing no signs of ascarids and 4 corresponding to more than three worm sections visualized on the exam. One score was assigned for each foal on