Volume 29 | Issue 2 Article 5

1967

Parasites in Domestic Animals in Iowa

J. H. Greve
Iowa State University

Parasites in Domestic Animals in Iowa

J. H. Greve,* B.S., D.V.M., M.S., Ph.D.

Because the profit margin in the livestock industry is narrowing year by year, the importance of subclinical disease ever increases. Of major importance in the realm of subclinical disease is parasitism. Although parasites are capable of causing severe morbidity and mortality, the usual situation seen from day to day is the insidious, nonspectacular stress placed on animals by subclinical infections by various parasites. It is impossible to measure the damage produced by such infections, except perhaps by carefully controlled scientific experiments. Moreover, some of these parasites are zoonotic or transmit other agents to man.

Therefore, knowing the incidence of various parasites is important when one considers eliminating or controlling losses from subclinical and zoonotic parasitism. With this in mind, a study was made of the parasites present in livestock and companion animals that had been brought to Stange Memorial Clinics, Iowa State University, from September, 1965, through May, 1966. Ruminants are considered here.

MATERIALS AND METHODS

Routine clinical parasitologic procedures were used. Fecal examinations were conducted, using modified Sheather's (sugar) solution; identification of larvae from gastrointestinal nematodes by fecal culture; and skin scrapings by NaOH or mineral oil. In addition, some specimens from necropsy or clinical examination were identified.

* Dr. Greve is an Associate Professor in the Department of Veterinary Pathology, Iowa State University.

Not all of the animals brought to the clinics were examined parasitologically. Specimens included in this study were collected from bovines and ovines as conditions permitted.

RESULTS

Bovine Fecal Examinations:

During the study period, 167 fecal samples from cattle were examined (Table I). Of these, 134 (80%) had eggs of "gastrointestinal nematodes." As a rule no attempt was made to refine this diagnosis. However, when fecal cultures and larval identifications were made, larvae of *Ostertagia, Cooperia,* and *Trichostrongylus* were found commonly, with fewer specimens of *Oesophagostomum* and *Bunostomum* being collected. Of the 167 samples, 41 (25%) contained oocysts of *Eimeria* spp. (*bovis, ellipsoidalis,* and *cylindrica* identified). Only 1 case of clinical coccidiosis (*E. bovis*) is included in these 41 examinations.

Other findings from fecal examinations are as follows: 7 (4%) *Strongyloides papillosus;* 16 (10%) *Trichuris* spp.; 3 (2%) *Moniezia* spp.; and 13 (8%) *Nematodirus* spp. In addition, 2 fecal samples contained eggs of *Ascaris suum,* apparently spuriously. Twenty-one samples (13%) were negative. The figures total more than 100% because some samples contained more than one parasitic species.

Skin Examinations:

Ectoparasites that were identified were as follows: the short-nosed suctorial louse, *Haematopinus eurysternus,* (5 cases); the

chewing (little red) louse, *Damalinia bovis* (5); and the long-nosed suctorial louse, *Linognathus vituli* (2).

Ovine Fecal Examinations:

During the study period, 19 fecal samples from sheep were examined (Table II). Of these, 17 (90%) had eggs of "gastrointestinal nematodes." Of the samples in this series, none was subjected to fecal culture. Ten (53%) of the samples had oocysts of *Eimeria* spp., 4 (21%) had eggs of *Strongyloides papillosus*, 4 (21%) had eggs of *Trichuris* spp., 4 (21%) had larvae of *Dictyocaulus filaria*, and 1 (5%) had eggs of *Moniezia* spp. One sample (5%), which was from an experimental sheep, was negative.

No ectoparasites other than the "tick", *Melophagus ovinus*, were found from sheep.

DISCUSSION

The presence of gastrointestinal parasites in ruminants in Iowa is extremely common. It has been widely accepted among practicing Iowa veterinarians that gastrointestinal helminthiasis in sheep is a serious problem, but the corresponding condition in cattle often has not been recognized. One factor that may have led to this misconception is the fact that seldom do the eggs in a bovine sample reach high numbers. Very high egg counts are not necessary for reduction in performance of cattle.

One is always faced with the decision of whether the eggs found in an examination are sufficient to warrant "deworming" the herd, especially when the animals appear normal clinically. There is no simple laboratory test to apply to answer this dilemma. Some veterinarians have relied upon the quantitative McMaster test to aid in evaluating fecal examinations. Although there is poor correlation between worm burdens and numbers of eggs per gram of feces (EPG), egg counts coupled with hemograms are all that is available in the way of laboratory aids to evaluate parasitisms.

Even data from hemograms are not specific. Certainly subclinical parasitisms would produce little or no change in these values. However, as a result of the feeding habits of gastrointestinal nematodes, anemia often is associated with clinical parasitism (blood-sucking as in haemonchosis or dyshematopoiesis of alimentary origin as in trichostrongylosis). The anemia may vary from microcytic-hypochromic to normocytic-normochromic, values which are calculated from the packed-cell volume, erythrocyte count, and hemoglobin concentration. The type and degree of anemia are subject to considerable individual variation due to differences in bone marrow response, degree of resistance developed by the animal, level of nutrition, virulence of the strains of nematodes, and other factors. In view of all these variables, attempts to correlate anemia and EPG have been largely futile.

In our experience, most cattle without signs referable to gastrointestinal parasitism will have counts up to 300 EPG. Counts above 1000 are seldom encountered, but egg counts of 5500, 4750, 2300, and 2000 occurred in this study. Such counts probably represent clinical parasitism. Although other clinical conditions may affect the animal, recovery in such cases is enhanced when the parasitism also is recognized and handled.

TABLE I

SUMMARY OF FECAL EXAMINATIONS FOR 167 CATTLE*

Parasite	Positive samples	Negative samples	Per cent which were positvie
"Gastrointestinal nematodes"	134	33	80
Eimeria spp.	41	126	25
Strongyloides	7	160	4
Trichuris	16	151	10
Moniezia	3	164	2

* 21 samples were negative for parasites.

TABLE II

SUMMARY OF FECAL EXAMINATIONS FROM 19 SHEEP*

Parasite	Positive samples	Negative samples	Per cent which were positive
"Gastrointestinal nematodes"	17	2	90
Eimeria spp.	10	9	53
Strongyloides	4	15	21
Trichuris	4	15	21
Dictyocaulus	4	15	21
Moniezia	1	18	5

* 1 sample negative for parasites.