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A Survey of The Gastro-intestinal Parasites of Cattle in Oklahoma

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All Oklahoma Shares Parasite Problem
Common to Southern and Southwestern States.

Internal parasites such as stomach and intestinal worms cause considerable yearly loss to farmers and ranchers in the South and Southwest. These parasites lower the rate of gains made by beef cattle, and reduce the milk flow of dairy cows. Therefore one of the important projects of the Oklahoma Veterinary Research Institute is to discover methods of reducing or eliminating internal parasites in Oklahoma cattle.

Before effective research could be done, it was necessary to find out: (1) Which of the many known intestinal parasites were infecting cattle in Oklahoma, and (2) whether the problem was statewide or confined to certain areas. Therefore a survey was made to secure the needed information. This bulletin reports the results of that survey.

The results indicate that the internal parasite problem in Oklahoma is statewide. They failed to support the often-heard opinion that internal parasites are more numerous in cattle of the open-range section of southeastern Oklahoma than in cattle in other parts of the State.

More importantly, this survey gives the staff of the Institute definite information on the kinds of internal parasites most often found in Oklahoma cattle. The research veterinarians are now in position to make further investigation to obtain the knowledge needed for control of these parasites.

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A Survey of the Gastro-intestinal Parasites of Cattle in Oklahoma.

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Cattle parasite problems of the South and Southwest have not received the concentrated attention that has been given to more acute disease conditions, but they are gradually being recognized as causing an important economic loss. Therefore one of the major projects of the recently established Oklahoma Veterinary Research Institute is devoted to study of the internal parasites of Oklahoma cattle. The long-range objective of this project is to find ways of controlling, or if possible eliminating, the parasites which are proving costly to the cattle industry.

The objective of the work reported in this bulletin was to survey the internal parasite problem on a state-wide basis in order to obtain a clearer picture of the parasite infection of native cattle.

MATERIALS AND METHODS

MATERIALS.

Material was collected from animals at the time of slaughter at slaughter houses in fourteen localities in Oklahoma. These locations are shown in Figure 1.

As far as possible, material was collected from animals under 18 months of age. This age group was selected because, in general, these animals have been grazing for a sufficient length of time to have become infected with most species of internal parasites. Younger animals may or may not have become infected, while older infected cattle may have developed an immunity. Therefore a more representative collection of parasites can be obtained from animals less than 18 months of age.

All animals from which material was collected were native cattle, raised in the area where they were slaughtered.

The greater percentage of the animals from which materials were taken were in good flesh, as they had been considered ready for the slaughter market. In conformance with the desires of the operators of most of the slaughter houses, the rumen was not opened, therefore no information was obtained as to the prevalence of rumen parasites.

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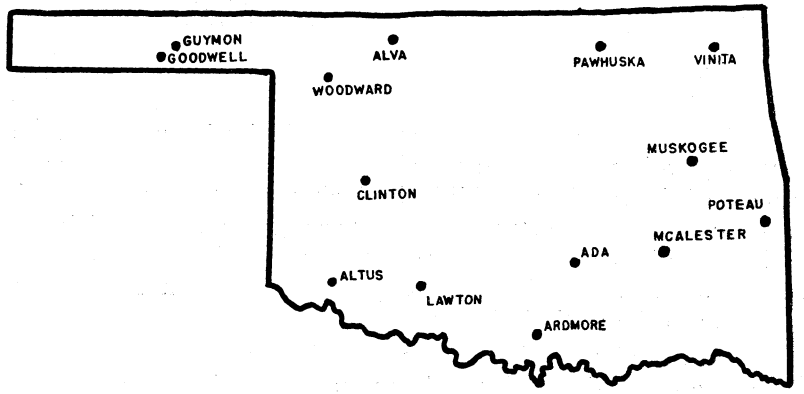

Fig. 1.—Locations Where Materials Were Obtained

The collection of material extended from the first part of February through the end of September, 1947.

METHODS.

General.—Wide-mouth, screw-top, one-gallon jars were prepared in the laboratory by placing in them sufficient full strength formaldehyde (37%) to make one full gallon of 10% formaldehyde solution when the jar was full. The material collected was placed in the jar containing full strength formaldehyde, and sufficient water was then added to fill the jar. This assured a concentration of formalin that would preserve the material and its parasites until the material could be examined in the laboratory. These jars were inspected for traces of decomposition of contents at the laboratory, and then kept under refrigeration until examined. If there were traces of decomposition, the material was processed immediately to prevent loss.

In working with the intestines at time of slaughter, the abomasum was worked first, cecum and large intestine second, and small intestine last.

The parasites recovered were placed in 70% alcohol and thus preserved for detailed identification procedures where necessary. Monnig (1), Ransom (2), and Threlkeld (3,4) were consulted for detailed identification of genus and species where this was indicated.

Abomasum.—The omasal-abomasal opening and the pylorus were tied off as soon as the intestines were removed from the animal, with the exception of animals 13 and 14. These two animals had been killed the night previous to collection, so it was impossible to close the openings at the time of slaughter. After the openings were closed, the abomasum was removed by dissecting away the attachments to the rumen and mesentery. It was then placed, with contents intact, into the jar containing formaldehyde, and water was added to fill the jar. The jar was agitated to thoroughly mix the solution, and then placed in a box for removal to the laboratory.

In the laboratory, the abomasum was removed from the jar and slit open over a large decanting pan. The contents were placed in the pan and the mucous lining of the abomasum washed at least three times with running water, all these washings being collected in decanting pans. All ingesta, including the washings from the mucous surface, were cleared by decanting. This was accomplished by adding water to the material in the pans and stirring the contents, allowing it to settle for at least five minutes before decanting the supernatant, colored fluid. This decanting process was repeated until the supernatant fluid was clear. The remaining material was placed in jars and formalized to preserve it for examination.

To examine the material, a small amount was placed in one section of a Petri dish with concentric circles drawn on the bottom to assure examination of all the material. A low-power microscope was used to find the worms, which were removed with a dissection needle as they were found. The worms were identified as closely as possible and counted as they were placed in Kahn antigen vials containing 70% alcohol. Broken worms or parts of worms were not counted if the posterior parts used in identification were missing. As parasite recoveries were completed from material from each locality, identification of all parasites was checked with the low power microscope. If this identification was uncertain the parasites were cleared and mounted on slides for detailed identification with the high power microscope.

Identification was merely to establish the genus, as it would have been impractical to identify by species all parasites recovered.

Small Intestine.—Material from the small intestines was collected in the same type jars as used for the abomasa, and the jars were prepared in the same manner.

The ends of the small intestine were closed by tying with string and the intestines separated from the mesentery. They were then opened lengthwise and the contents collected in a tub, washed thoroughly over the tub, and the contents diluted with water to make a total of six gallons. The material was thoroughly stirred and samples dipped out until one gallon had been removed. This gallon of material was placed in the previously prepared jar containing formalin and the jar handled in the same manner as those containing the abomasa.

At the laboratory, this material was decanted in the same manner as that from the abomasum, and the parasites recovered by the same procedures. As this material represented only 1/6 of the contents of the small intestine, the number of worms recovered was multiplied by 6 to determine the total number of parasites. Animals 17, 20, and 52 had only a small amount of material in the small intestine, therefore the contents of the tub were diluted to 3 gallons instead of 6. As this material represented 1/3 instead of 1/6 of the total contents, the number of parasites recovered were multiplied by 3 instead of 6.

The tapeworms were removed as they were found during the opening of the small intestine, so the figures recorded are for the actual numbers of tapeworms found. The ascarid reported from animal 45 was recovered directly from the intestines. No other ascarids were noted.

No material was collected from the small or large intestine of animal 14. The intestine had been separated from the abomasum during slaughter the previous evening, and it was impossible to identify these parts with the correct abomasum.

Cecum and Large Intestine.—Two procedures were used in collecting the material from the cecum and large intestine. For animals 1 through 14, the cecum and large intestine were handled in the same manner as the small intestine; that is they were opened, washed, and samples taken from the diluted contents in the tub. For the remainder of the animals, the ileo-cecal opening was closed with string and the cecum and approximately three feet of the large intestine removed and placed with their contents in the jar of formalin. This was similar to the method used for preserving the abomasum and its contents. The cecum and large intestine were handled in the same manner as the abomasum in the washing, decanting and preserving of the contents, and parasites were recovered in the same manner.

No material was collected from animals 5, 33 and 50 because of accidental cutting of the cecum or large intestine at time of slaughter. These cuts allowed the contents to escape, making it impossible to determine that all the parasites would be recovered.

RESULTS

ABOMASUM.

The parasites of the abomasum have been a greater economic problem than any of the other intestinal parasites of cattle. This is evidenced by the large amount of research conducted in other parts of the country, which has increased our knowledge of the bionomics of the various Ostertagia spp. and *Haemonchus contortus.*

Table I shows the actual number of parasites, listed by genera, which were recovered from the contents of the abomasa. The average for each genus found in each locality is listed after the locality; and the general average, covering all animals surveyed, is shown at the end of the table. Table II gives the percentage of animals infected, by locality; and the general percentage for all the animals surveyed is given at the end of the table.

Table I shows a large amount of individual variation among animals in the number of parasites recovered. Animals from the same locality may show a low average infection of one genus while the average for another genus may be exceptionally high.

The lowest averages for the total of all genera were found in the animals from Texas and Custer counties. These low averages, in all probability, are the result of two conditions: First, the animals in that section of the state pasture through the winter on winter wheat; and, second, the summer months are exceptionally hot and dry. The constant tilling of the soil, and the high temperatures with low humidity, tend to kill large numbers of parasite larvae soon after they are passed from the host.

The next lowest averages, in general, were found in the animals from Osage and Pontotoc counties. Here again pasture practices are probably responsible for the small numbers of parasites recovered. The pastures in these counties are permanent, but large in area with tall grasses, which factors generally mean less opportunity for animals to contact the larval stages of the various parasites.

The lowest average of *Haemonchus contortus* is shown by the collections from Pittsburg county, though the averages for the other genera were much higher than the general averages.

TABLE I.—Abomasal Parasites — Number Recovered; by Individual Animals, and by Localities.

Animal No.	Sex	Age	Haemonchus spp.	Ostertagia spp.	Trichostrongylus spp.	Total
			Osage			
1	F	3 yr.	0	0	0	0
2	S	2 yr.	0	321	0	321
3	S	1½ yr.	76	141	9	226
4	S	1 yr.	43	535	1	579
5	S	1 yr.	175	897	9	1,081
6	S	1 yr.	86	287	17	390
Axerage			63	363+	6	432+
			Pittsburg			
7	M	1 yr.	30	3,114	15,315	18,459
8	F	1 yr.	2	95	0	97
9	F	1 yr.	3	733	261	997
10	F	Unk.	6	1,050	67	1,123
Average			10+	1,248	3,910+	5,168+
			Woodward			
11	S	Unk.	396	2,284	22	2,702
12	S	Unk.	570	687	146	1,403
13	S	Unk.	827	1,540	136	2,503
14	S	Unk.	69	121	0	190
Average			365+	1,158	76	1,599
			Woods-Major			
15	F	1 yr.	2,228	991	61	3,280
16	F	1½ yr.	16	261	10	287
17	S	1 yr.	0	13	0	13
18	M	1 yr.	2,848	1,270	861	4,979
19	S	1 yr.	13	259	468	740
Average			1,021	558+	280	1,859+
			Texas*			
20	S	1 yr.	0	0	0	0
21	F	1½ yr.	55	13	76	144
22	F	1½ yr.	43	81	4	128
23	S	1½ yr.	34	12	2	48
24	S	1 yr.	189	29	7	225
25	S	1 yr.	1	6	4	11
Average			53+	23+	15+	91+
			Custer			
26	F	10 Mo.	3	0	3	6
27	F	10 Mo.	151	8	10	169
28	F	10 Mo.	119	12	0	131
29	F	Unk.	24	35	6	65
Average			74+	13+	4+	91+

(Continued)

TABLE I, Continued.

Animal No.	Sex	Age	Haemonchus spp.	Ostertagia spp.	Trichostrongylus spp.	Total
			Jackson			
30	S	1½ yr.	290	1,178	106	1,574
31	F	1½ yr.	97	68	27	192
32	F	Unk.	14	0	0	14
33	F	1 yr.	378	41	4	423
Average			194+	321+	34+	549+
			Comanche			
34—	S	1 yr.	108	250	23	381
35	F	1½ yr.	111	95	16	222
36	S	1 yr.	271	83	16	370
37	S	1½ yr.	1,337	755	179	2,271
Average			456+	295+	58+	809+
			Carter			
38	S	1 yr.	326	804	170	1,300
39	S	1 yr.	104	139	129	372
40	F	1½ yr.	0	12	0	12
41	S	1 yr.	205	156	45	406
Average			158+	279+	86	523+
			Pontotoc			
42	S	1½ yr.	219	127	14	360
43	F	10 Mo.	0	457	0	457
44	F	Unk.	158	275	7	440
45	S	1½ yr.	127	32	21	180
Average			126	222+	10+	358+
			Muskogee			
46	F	1 yr.	21	6,543	1,274	7,838
47	S	1 yr.	0	5,605	823	6,428
48	M	1 yr.	87	1,807	497	2,391
49	F	1 yr.	34	1,083	126	1,243
50	S	1 yr.	154	982	359	1,495
Average			59+	3,204	615+	3,878+
			LeFlore			
51	F	Unk.	2	11	0	13
52	F	1½ yr.	51	273	12	336
53	F	1 yr.	739	3,636	6,570	10,945
Average			264	1,306+	2,194	3,764+
			Craig			
54	F	1 yr.	3,510	7,406	2,191	13,107
55	F	1½ yr.	4	4	0	8
56	S	1 yr.	531	4,015	1,399	5,945
57	M	1½ yr.	152	713	48	913
Average			1,049+	3,034+	909+	4,992+
			All Localities			
Average			298+	990+	553+	1,751+

* Two locations in Texas County.

TABLE II.—Abomasal Parasites — Percentage of Animals Infected, by Localities.

Locality	Haemonchus contortus	Ostertagia spp.	Trichostrongylus spp.
	%	%	%
Osage	66	83	66
Pittsburg	100	100	75
Woodward	100	100	75
Woods-Major	80	100	80
Texas (A & B)	83	83	83
Custer	100	75	75
Jackson	100	75	75
Comanche	100	100	100
Carter	75	100	75
Pontotoc	75	100	75
Muskogee	80	100	100
LeFlore	100	100	66
Craig	100	100	75
All Localities	87	95	79

The fourth highest general average, that of LeFlore county, shows a rather high average for Trichostrongylus spp., though the averages of the other genera are closer to the general average of infection.

Muskogee county showed a very low average infection of Haemonchus, but a higher average infection of Ostertagia than any of the other localities. The animals from this county had the third highest general average, but this is misleading as there was a very high Ostertagia spp. average and a very low Haemonchus average.

The next highest averages for all genera were found in the collections from Craig county. These showed a very high average for each of the three genera recovered, and can be considered an accurate index of the general parasite infection of this locality.

The second highest average of Haemonchus was recovered from Woods-Major counties. These two counties were listed together because some of the animals originated in Woods county and the others in Major county, and it was impossible to determine which animals originated in each county. It will be noted that the general average is raised by two animals which carried an extremely high infection of Haemonchus. Two other animals in the same group showed a very low infection of the three genera.

The highest general average, for the three genera, was found in the collections made from Pittsburg county. This average was

elevated by the recovery, from one animal, of an exceptionally large number of Trichostrongylus spp. which completely obscured the very low average of Haemonchus recovered.

There were several animals in which one genus or another were not found, but there were only two, animals 1 and 20, from which no abomasal parasites were recovered.

SMALL INTESTINE, CECUM, AND LARGE INTESTINE.

According to Monnig (1), the small intestinal parasites are troublesome only in case of an infection of extremely large numbers. An infection of these parasites is not considered as serious a problem as an equal infection of the abomasal parasites. Several of the animals studied in the report were infected with large numbers of small intestinal parasites, but no resultant ill effects were noted in these animals.

Tables III and IV contain the combined data for the small intestines, ceca and large intestines. Table III shows the actual number of parasites by genera that were recovered from each animal. The average for each genus found in each locality is listed after the locality; and the general average, covering all the animals surveyed ,is located at the end of the table. Table IV lists the percentage of animals infected in each locality and gives the percentage of infection in general.

There were six animals from which no small intestinal parasites were recovered (1, 2, 20, 21, 32 and 44). Nos. 1 and 2 originated in Osage county, 20 and 21 in Texas county, 32 in Jackson county, and 44 in Pontotoc county.

The general average for Cooperia spp. was higher than the average for any other parasite found in either the abomasa, small intestines, ceca, or large intestines. The general average of Nematodirus spp. was second highest in the small intestine, and was elevated mainly by the recovery of large numbers from three animals (18, 34, 57).

The general averages for the other species recovered were so small as to be insignificant as regards the parasite problem in these animals.

Two animals, No. 11 from Woodward county and 35 from Comanche county, harbored extremely large numbers of Cooperia spp. These animals were suffering no apparent ill effects from this infection.

TABLE III.—Intestinal Parasites*—Number Recovered, by Individual Animals, and by Localities.

Animal No.	Cooperia spp.	Nematodirus spp.	Bunostomum spp.	Moniezia spp.	Ascaris spp.	E. radiatum	Trichuris ovis	Chabertia ovina	Total
				Osage					
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	30	0	0	30
3	390	0	0	0	0	66	0	0	456
4	348	42	0	0	0	48	0	0	438
5	3,384	498	0	4	0	*	*	*	3,886
6	552	96	0	1	0	30	0	0	679
Ave.	779	106	0	⅝	0	29	0	0	914⅝
				Pittsburg					
7	2,118	0	0	0	0	96	0	0	2,214
8	1,236	0	6	0	0	48	0	0	1,290
9	5,130	198	6	8	0	90	0	0	5,432
10	0	6	0	0	0	18	0	0	24
Ave.	2,121	51	3	2	0	63	0	0	2,240
				Woodward					
11	10,302	120	0	0	0	0	0	0	10,422
12	3,006	216	12	0	0	18	0	0	3,252
13	3,060	54	6	0	0	0	0	0	3,120
14**									
Ave.	5,456	130	6	0	0	6	0	0	5,598
				Woods-Major					
15	2,430	0	0	0	0	39	0	5	2,474
16	2,226	24	0	0	0	47	0	1	2,297
17	3	0	0	0	0	0	1	0	4
18	4,098	1,038	18	1	0	417	5	15	5,592
19	3,528	0	0	0	0	7	0	1	3,536
Ave.	2,457	210+	3+	⅛	0	102	1+	4+	2,777⅛
				Texas					
20	0	0	0	0	0	1	2	0	3
21	0	0	0	0	0	8†	0	0	8
22	1,044	24	0	0	0	45	0	0	1,113
23	522	18	0	0	0	1	0	0	541
24	510	30	0	0	0	83	0	2	625
25	12	0	0	0	0	2	0	4	18
Ave.	348	12	0	0	0	23+	⅓	1	384⅓+
				Custer					
26	204	0	0	0	0	0	0	0	204
27	96	0	0	0	6	1	0	2	105
28	7,368	0	0	0	0	0	0	0	7,368
29	528	66	0	0	0	7	0	0	601
Ave.	2,049	16+	0	0	1+	2	0	½	2,068½
				Jackson					
30	1,992	48	0	0	0	39	0	0	2,079
31	24	0	0	0	0	0	0	1	25
32	0	0	0	0	0	1	0	0	1
33	888	54	0	0	0	**	**	**	942
Ave.	726	42	0	0	0	13+	0	⅓	781⅓

(Continued)

TABLE III, Continued.

Animal No.	Cooperia spp.	Nematodirus spp.	Bunostomum spp.	Moniezia spp.	Ascaris spp.	E. radiatum	Trichuris ovis	Chabertia ovina	Total
				Comanche					
34	1,056	4,200	0	0	0	7	0	0	5,263
35	12,252	12	0	0	0	31	2	1	12,298
36	966	354	0	0	0	32	0	1	1,353
37	7,332	414	12	1	0	155	0	0	8,014
Ave.	5,401+	1,245	3	¼	0	56+	½	½	6,706¼
				Carter					
38	4,212	150	0	5	0	69	0	0	4,436
39	618	0	0	1	0	31	0	2	652
40	18	0	0	0	6	2	0	0	26
41	1,878	60	24	0	0	8	9	0	1,979
Ave.	1,684	52+	6	1+	1+	27+	2+	½	1,773½
				Pontotoc					
42	1,032	0	30	0	0	2	0	0	1,064
43	0	0	0	1	0	0	0	0	1
44	0	0	0	0	0	4	0	0	4
45	1,470	24	12	1	1	29	2	0	1,539
Ave.	625+	6	10+	½	¼	8+	½	0	650¼
				Muskogee					
46	42	0	0	1	0	4	0	4	51
47	30	0	0	0	0	3	0	0	33
48	1,026	222	42	4	0	0	3	0	1,297
49	12	0	0	1	0	5	0	1	19
50	702	156	6	0	0	**	**	**	864
Ave.	463	75+	9+	1+	0	2+	¾	1+	551¾
				LeFlore					
51	0	0	0	1	0	4	0	0	5
52	78	3	3	0	0	2	0	1	87
53	4,776	0	48	0	0	68	0	1	4,893
Ave.	1,618	1	17	⅓	0	24+	0	⅔	661
				Craig					
54	18	0	0	1	0	44	0	0	63
55	72	78	0	2	0	0	0	0	152
56	1,896	174	0	2	0	47	6	0	2,125
57	1,080	2,562	0	1	0	13	7	0	3,663
Ave.	766+	703+	0	1+	0	26	3+	0	1,499
Average, all localities									
	1,706+	193+	3+	1—	1—	32+	1—	1—	1,938

*Small Intestine, cecum, and large intestine.

**No material collected.

†One immature form found in small intestine.

TABLE IV.—Intestinal Parasites* — Percentage of Animals Infected, by Localities.

Locality	Cooperia spp.	Nematodirus spp.	Bunostomum spp.	Moniezia spp.	Ascaris E. spp.	Radiatum	Trichuris ovis	Chabertia ovina
	%	%	%	%	%	%	%	%
Osage	66	50	0	33	0	80	0	0
Pittsburg	75	50	50	25	0	100	0	0
Woodward	100	100	66	0	0	33	0	0
Woods-Major	100	40	20	20	0	80	40	80
Texas (A&B)	66	50	0	0	0	100	18	33
Custer	100	25	0	0	25	50	0	25
Jackson	75	50	0	0	0	66	0	33
Comanche	100	100	25	25	0	100	25	50
Carter	100	50	25	25	25	100	25	25
Pontotoc	50	25	50	50	25	75	25	0
Muskogee	100	40	40	60	0	75	25	50
LeFlore	66	33	66	33	0	100	0	66
Craig	100	75	0	100	0	75	50	0
All localities	84	52	23	30	5	81	17	28

*Large and small intestines and cecum.

Bunostomum phlebotomum was found in several animals but the numbers were not large in comparison with the other parasites present.

Several animals harbored Moniezia spp. but not in sufficiently large numbers to be affected by them.

Ascaris vitulorum was found in three animals: Nos. 27, 40 and 45. Several of these worms were noted at the time the intestines of Nos. 25 and 40 were opened. No attempt was made to collect them except by the sampling method used for the small intestine. The ascarid recovered from animal 45 was collected at the time of opening the intestine. No other parasites of this species was seen in, or collected from, the intestinal contents of this animal, so the parasite was recorded as a single worm rather than being multiplied by six as was done with those recovered by sampling.

All of these parasites of which only small numbers were found might under different conditions or in specific instances reach the proportions of a major infection. Their general average, however, is not great enough to consider them except as a potential source of infection.

Esophagostomum radiatum, Trichuris ovis and *Chabertia ovina* were recovered in varying numbers from contents of the ceca and large intestines.

The only parasite found in any numbers was E. radiatum. This was found in over 80 percent of the intestines examined, but occurred in great numbers in only two of the animals: 18 and 37. Animal 18 also harbored the greatest number of Chabertia ovina found in any one animal.

The Chabertia and Trichuris infections were so small in number as to be considered of no general importance.

SUMMARY

Fourteen locations in the state were selected and parasites were recovered (except as noted) from the abomasa, small intestines, ceca, and large intestines of 57 cattle slaughtered at these locations. The cattle were native to the locality in which they were slaughtered.

ABOMASUM.

Of the 57 animals surveyed for abomasal parasites, 87% were infected with *Haemonchus contortus,* 95% with Ostertagia spp., and 79% with Trichostrongylus spp.

Haemonchus contortus—Nine localities were below, and four above, the general average of 298+ per animal.

Ostertagia spp.—Eight localities were below, and five above, the general average of 900+ per animal.

Trichostrongylus spp.—Nine localities were below, and four above, the general average of 553+ per animal.

SMALL INTESTINE.

Of the 56 animals surveyed for small intestinal parasites, 84% were infected with Cooperia spp., 52% with Nematodirus spp., 23% with Bunostomum spp., 30% with Moniezia spp., and 5% with Ascaris spp.

Cooperia spp.—Eight localities were below, and five above, the general average of 1706+ per animal.

Nematodirus spp.—Ten localities were below, and three above, the general average of 193+ per animal.

The general averages of Bunosomum spp. (3+), Moniezia spp. (1—), and Ascaris spp. (1—) per animal surveyed were so small as to be of no significance.

CECUM AND LARGE INTESTINES.

Of the 53 animals surveyed for parasites of the cecum and large intestine, 81% were infected with *E. radiatum,* 28% with *Chabertia ovina,* and 17% with *Trichuris ovis.*

Ten of the localities from which material was collected were below the general average of 32 for *E. radiatum* recovered, and three localities were above. The average infections with *Chabertia ovina* and *Trichuris ovis* were not significant.

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The Oklahoma Veterinary Research Institute

HERMAN FARLEY, *Executive Director*

The Oklahoma Veterinary Research Institute was created by the Board of Regents of the Oklahoma A. and M. College July 1, 1945, in conformity with an Act of the 13th Legislature of the State of Oklahoma providing for research work at the College in animal disease control.

The purpose of the Oklahoma Veterinary Research Institute is to study the various livestock diseases of Oklahoma. It enables the College to conduct research directed at some of the most important livestock diseases that are proving deterimental to our livestock industry.

Livestock diseases will be investigated in the order of their importance. Research studies will be directed at cause, economic importance, and the best means of control.

The Institute will keep contact with other State and Federal disease control agencies that are studying livestock diseases common to Oklahoma livestock in order to further strengthen the disease control program in this state.

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