

The Administration of Anthelmintics to Horses in Bran.

By H. O. MÖNNIG, B.A., Dr.Phil., B.V.Sc., and
I. P. MARAIS, B.Sc. Agric., B.V.Sc., Veterinary Research Officers,
Onderstepoort.

The best anthelmintics for horses are Carbon bisulphide (25 c.c. per 1,000 lb. or more for *Ascaris*, *Habronema* and *Gastrophilus*), Carbon tetrachloride (50-100 c.c. per 1,000 lb. or more for blood-sucking *Strongyles*) and Chenopodium oil (16 c.c. per 1,000 lb. or more for non-blood-sucking *Strongyles* and *Oxyuris*). These drugs have to be administered in capsule or by stomach tube, although Chenopodium oil can be given as a drench mixed with raw linseed oil. In the case of *Habronema* the stomach should first be washed out with 8-10 litres of a 2 per cent. sodium bicarbonate solution through a stomach tube.

It is obvious, that treatments of this nature can be carried out safely only by a veterinarian and not by the farmer. In South Africa the Government Veterinary Officer is frequently not available for attention to such cases and, while the farmers have not yet realised the value of veterinary assistance, there are relatively few veterinarians in private practice. The difficulty therefore arises, that advice is frequently sought with regard to the treatment of horses for worms but the really useful drugs cannot be prescribed on account of the difficulty of administration.

Roger, Jouveaux and Plateau (1928) described a method of administering these anthelmintics in bran. These authors state, that they have treated a large number of French army horses in this way with great success. The method is briefly as follows:—The horse is placed on sloppy diet for at least 12 hours and then fasted for 36 hours before treatment. Half the dose is mixed with four litres of water in a suitable vessel and, while it is being stirred vigorously, six to seven litres of bran are added until all the liquid is absorbed. The mixture is fed immediately, the first half dose being given in the morning and the second in the same way in the evening.

It was considered desirable to carry out a critical test of this method. The treatment was carried out exactly as described and the worm infection was determined by means of egg-counts on the faeces.

PRELIMINARY TESTS.

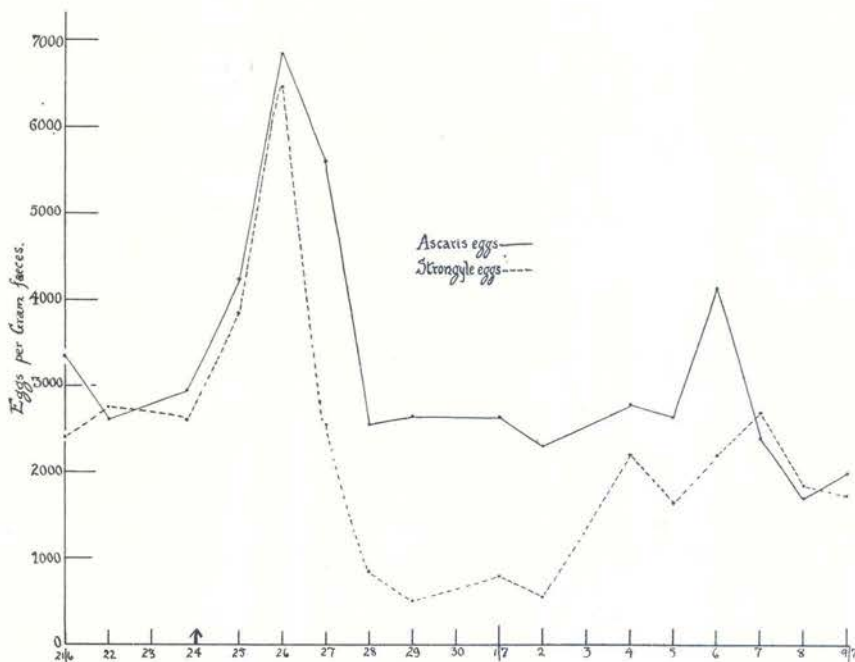
1. Horse 20313. Eggs per gram faeces on 26/3/32 : 800 strongyle eggs.
Treated with 16 c.c. Chenopodium oil on 4/4/32. Both portions were taken readily. Egg count 21/4/32 : 1,500.
2. Horse 20327. Egg count 26/3/32 : 2,100 strongyle eggs.
Treated with 40 c.c. Carbon tetrachloride on 4/4/32. Both portions were taken readily. Egg count 21/4/32 : 230.
3. Horse 20192. Egg count 31/3/32 : 2,200 strongyle eggs.
Treated with 50 c.c. carbon tetrachloride on 11/4/32. Both portions were taken readily. Egg count 10/5/32 : 1,200.
4. Horse 19580. Egg count 12/4/32 : 5,650 strongyle eggs.
Treated with 16 c.c. Chenopodium oil on 25/4/32. Both portions taken readily. Egg count 10/5/32 : 350.

Discussion. On the whole the results indicated the desirability of further, more accurate investigation.

MORE DETAILED TESTS.

1. Horse 20312. Egg counts on 12-14/5/32 : 6,600, 5,400, 7,350, average 6,450 strongyle eggs per gram faeces. Treated 16/5/32 with 16 c.c. Chenopodium oil. Both portions taken readily. Egg counts on 1-3/6/32 : 10,500, 7,100, 8,650, average 8,750 strongyle eggs per gram faeces.
2. Horse 19177. Egg counts on 12-14/5/32 : 5,000, 3,250, 4,100, average 4,117 strongyle eggs per gram faeces. Treated 16/5/32 with 50 c.c. Carbon tetrachloride. Both portions taken readily. Egg counts on 1-3/6/32 : 9,100, 11,700, 9,350, average 10,050 strongyle eggs per gram faeces.
3. Horse 20369, weight 750 lb. Egg counts on 19-21/5/32 : 6,400, 7,050, 7,100, average 6,850 strongyle eggs and 100, 400, 350, average 283 Ascaris eggs per gram faeces. Treated 24/5/32 with 18 c.c. Carbon bisulphide. Both portions taken readily. Egg count on 8/6/32 : 11,200 strongyle and 1,800 Ascaris eggs per gram faeces.
4. Horse 20370, weight 700 lb. Egg counts on 19-21/5/32 : 2,250, 3,100, 2,500, average 2,616 strongyle eggs and on 21/5/32 : 50 Ascaris eggs per gram faeces. Treated 24/5/32 with 36 c.c. Tetrachlorethylene. First portion taken readily, but of second half only two-thirds was eaten. Egg count on 8/6/32 : 3,650 strongyle eggs and 200 Ascaris eggs per gram faeces.

It was then decided to treat horse 20369 again and to administer the Carbon bisulphide in one dose. At the same time egg counts were made daily, in order to follow the effect of the drug on the egg-laying activities of the worms. The animal had been stabled for a few weeks and was apparently losing some of its strongyle infection while the ascarids were probably young and beginning to lay. The animal was treated on 24/6/32 with 18 c.c. Carbon bisulphide in the usual quantity of bran mash, which was eaten readily. The results of the egg counts are represented in the following graph :—



Discussion of this case.—The rise in the egg count immediately after treatment may have been due to disintegration of worms killed, but as no ascarids were passed either entire or in fragments and the number of eggs did not decrease subsequently, this rise must be ascribed to the smaller amount of faeces passed on account of the starvation preceding treatment, which would obviously affect the number of eggs per gram. The treatment does not seem to have had any effect on the egg-laying activities of the ascarids, but depressed egg-production of the strongyles up to 8 days after treatment.

Horses 20369 and 20370 were subsequently treated with Carbon bisulphide administered by stomach tube. In the case of 20369 the stomach was first washed out with 8 litres of 2 per cent. sodium bicarbonate, as for the treatment of *Habronema*. On faecal examination 14 days and 1 month after treatment no *Ascaris* eggs and only a small number of strongyle eggs were found in both horses.

SUMMARY AND CONCLUSIONS.

The method described by Roger, Jouveaux and Plateau of administering anthelmintics in bran to horses, was found to be quite ineffective against strongyles and ascarids while the administration of Carbon bisulphide by stomach tube was completely effective against *Ascaris* and fairly effective against strongyles.

LITERATURE.

ROGER, JOUVEAUX and PLATEAU (1928). "Mode d'administration pratique des anthelmintiques." *Bull. de l'Acad. Vét. de France*, Vol. I, p. 43.