

Clinical Trials with Cyanacethydrazide for the Treatment of Lungworms in Cattle and Sheep

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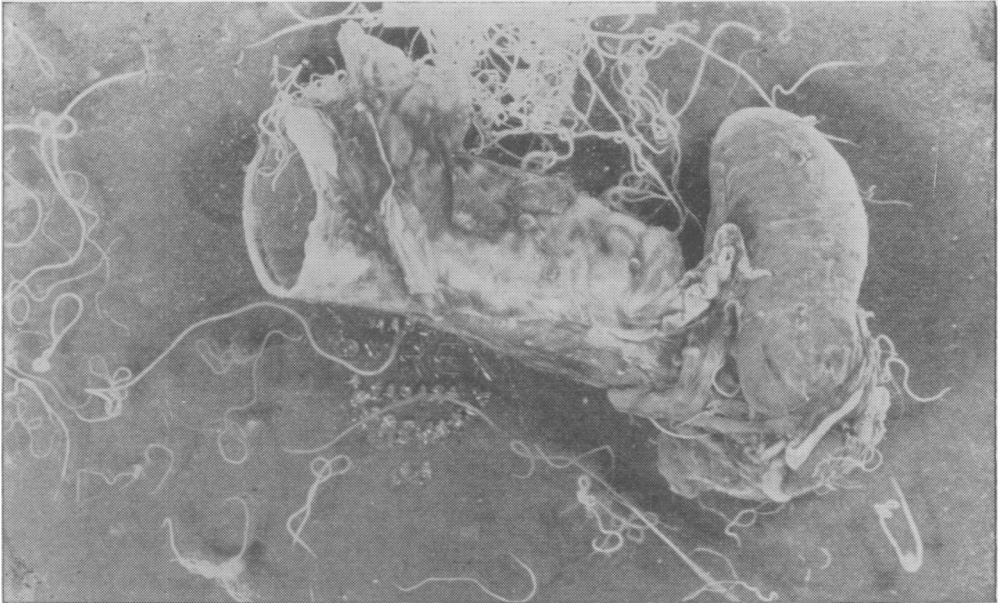


Fig. 1. Lungworms—Trachea of calf. Reproduced from color transparency.

LUNGWORMS in cattle (*Dictyocaulus viviparus*) and sheep (*D. filaria*) have been a serious problem on individual premises in Alberta for a number of years (1). The announcement that an effective treatment, cyanacethydrazide, had become available was of great interest (2), (3).

Cyanacethydrazide** is a product marketed for either oral or subcutaneous administration respectively. Its action is described as causing parasites present in the lung and air passages to lose their hold and be passed upwards by the ciliary movement of the bronchial and tracheal mucous membranes. The para-

sites are not killed and the effects of a single treatment are said to terminate in approximately eight hours. The presence of inflammatory exudate in the respiratory tract will serve as mechanical obstruction and impair results. The drug is administered at the rate of 15 mg./kg., either orally or subcutaneously, and is reported to be of low toxicity. However, safe maximum dosage is clearly stated with the manufacturer's directions.

Two premises were selected where lungworm infestation was a serious problem, one affecting cattle, the other sheep. In each case the diagnosis of lungworm infestation was confirmed by post mortem examination. Cyanacethydrazide was supplied to the local

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**Helmox Dictyicide - Imperial Chemical Industries Ayerst.

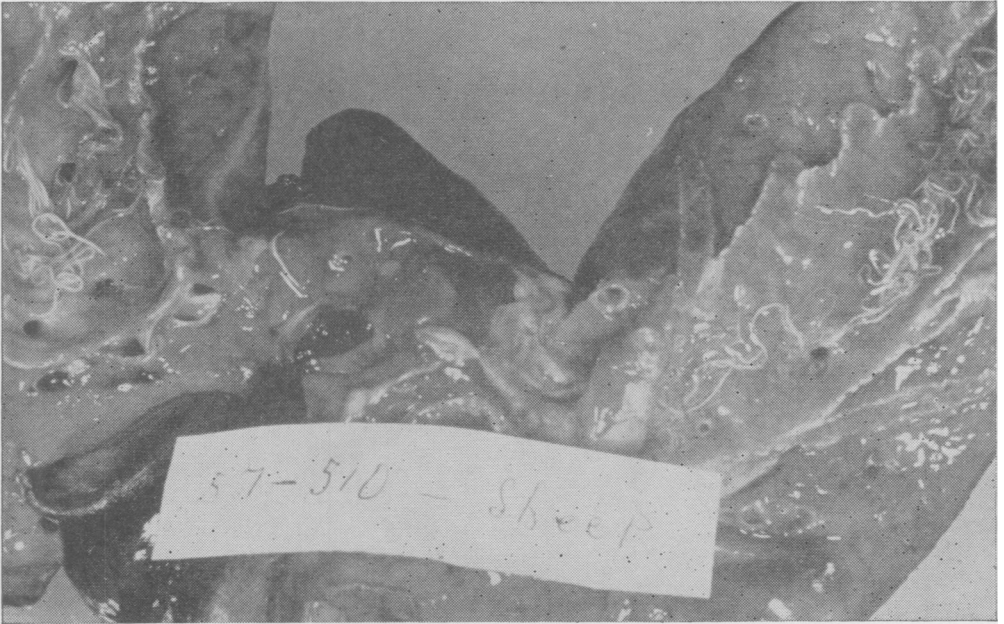


Fig. 2. Lungworms—Exposed bronchi of sheep. Reproduced from color transparency.

veterinarian who was responsible for the supervision of treatment and observations. Observations were also made by the author.

I. CATTLE

(a) History:—This was a herd consisting of 40 Holstein cows. Since 1954 the problem of lungworms had increased to the degree that in 1956/57 not a single replacement heifer had been raised. Not all had died, but the owner, after having placed several stunted heifers in the milking line, had sold many of his young calves.

Ten calves, from 7—11 months of age were available for treatment. All were clinically affected, typical coughing, unthrifty, and one was not expected to survive. One calf had died two weeks prior to this time.

Treatment consisted of either the subcutaneous or oral products, at recommended dose levels, repeated at 7 and 21 days.

(b) Results — three days following the initial dose all ten calves developed a marked increase in appetite. Coughing disappeared shortly after the sec-

ond treatment. The third dose, given at 21 days, appeared to have been unnecessary. Six weeks later all animals were free of symptoms and were normal thrifty calves.

Both the veterinarian and the owner were amazed with the results, particularly with the animal that had been expected to die. The sudden increase in appetite had been striking, so much so that the owner felt that treatment would be wasted if one was not prepared to satiate the appetites.

There was no difference between the oral and subcutaneous treatment animals. There was only slight visible reaction to the drug (salivation — swallowing), more marked following oral administration.

II. SHEEP

(a) History—This flock was composed of 150 ewes and 60 lambs. In the previous twelve months 30 ewes had died and the living lamb crop had been approximately 50 per cent. In October 1957 a veterinarian had diagnosed

lungworm infestation, had treated the flock with phenothiazine and had recommended an improved ration schedule, including vitamin supplements. These recommendations were not followed. In January 1958 the flock was in very poor condition. The majority of the lambs were runty and light; the ewes were in extremely poor condition, 30 severely emaciated ewes were penned separately. Deaths had been occurring in this latter group at the rate of two a week. Coughing was pronounced.

Approximately half the lambs, the severely affected ewes and an additional number of the remaining ewes were given a single injection, of cyanacethydrazide subcutaneously. A vitamin A supplement was supplied and the owner agreed to increase the grain ration.

(b) Results — circumstances developed that prevented observation of the sheep to be made with the same thoroughness as was possible with the calves. Two months after treatment all but a few of the treated sheep showed marked gain in weight and condition. Coughing had disappeared. Of the 30 emaciated ewes, one had died but the remainder were greatly improved and gaining weight. Perhaps the overall response could be judged by the fact that the owner, two weeks after treatment, was most anxious to have the control group treated.

The results from a single treatment were not 100 per cent but were remarkable, particularly in the most severely affected animals. No marked reaction

followed the administration of the drug although three lambs did shed their wool, a phenomena similar in appearance to a horse losing its winter coat.

III. EXPERIMENTAL

A limited amount of work has been done with the dosing of individual animals. Results indicate that cyanacethydrazide does result in a high percentage of parasites being removed from the lung. An item of interest was the marked increase in larvae appearing in the droppings on the 3rd and 4th day following treatment. Our experience has been that fecal examinations of suspected animals can be disappointing and negative findings not uncommon. In one instance where fecal examination for a suspect ewe was negative the drug was administered and numerous larvae were readily demonstrated in droppings collected on the 3rd day. The drug may be a useful diagnostic aid.

ACKNOWLEDGMENTS

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