

Parasitic Disease of Farm Animals

Practical Problems Which Confront The Farmer in Avoiding Losses

E. L. TAYLOR, Ministry of Agriculture and Fisheries, Waybridge, England.

THE close association between parasitic disease and animal nutrition will be more easily understood if we carry ourselves back in imagination to the beginnings of man's interference with the balance of Nature. Let us admit at the outset that throughout the stretches of evolutionary time everything ran comparatively smoothly until man made his appearance, and that the advent of his intelligence was of the nature of a calamity to all other zoological species.

We may suppose that early man was in some respects a gentleman, in that he spent his days in hunting and his nights in feasting. No doubt he sometimes returned from his hunting expeditions with young animals for his children to play with, and later, recognising the possibilities of providing through this means for his own comfort and security, he contrived to encourage the breeding of certain useful animals in captivity, and so set himself the task of protecting his tame animals from other beasts and providing for their food requirements. Through some such process as this primitive man came to exchange what must have been a very dashing if uncertain sportsman's life for the humdrum cares of the husbandman.

Where the Blame Lies

If we would lay the blame for the present prevalence of parasitic disease upon any particular individual it must be upon that early genius who was the first to think of husbanding the patches of grazing near his own home, fencing them round to keep his domesticated animals from wandering, and reserving the choice grass for them alone. That man may be regarded as the first agricultural sinner,

Written by an English veterinarian, this article will be of great interest to farmers, and especially sheep farmers, in that the subject is widely covered and is explained attractively in simple, everyday language. Most of his contentions are readily applicable to New Zealand conditions.

who deranged the natural order of things in the Garden of Eden, where the grazing animals had hitherto lived in peaceful equilibrium with their parasites.

One might describe the change by saying that the primordial state was one of harmonious community of happy worms in happy sheep, but since man's interference upset the balance one only too frequently sees a threatened annihilation of both. A satisfactory readjustment, bringing the level of parasitic infestation within the tolerance of the host, still awaits discovery.

Normal Inhabitants

It is generally admitted among graziers that the diseases caused by parasitic worms are the most economically important of all with which they have to contend. Most of us have been brought up to think that parasites are nasty creatures and that their only product is disease, so that it may come as a surprise to many to know that the very parasites which may give rise to so much trouble by excessive multiplication are normal inhabitants of healthy animals, guests of their alimentary tract.

Disease is as harmful to the parasites as it is to their hosts, as it may lead to the death of the whole community. Parasitic disease is, therefore, to be regarded as a flaw in the environment and a departure from the

primitive conditions to which the parasites had adapted themselves, rather than to a predaceous attack by small creatures upon a larger one.

So long as the number of worms in an animal remains reasonably and "naturally" small, the balance of the ecological unit is maintained (that is, the animal remains reasonably healthy) and a harmonious relationship continues, but disease follows where the numbers of the parasite community become excessively great. The increase of parasites, as we shall see, is essentially linked with progress in the improvement of pastures. Worm diseases are man-made, and the artificial readjustment of the balance between the grazing animal and its parasites looms very large in the practical problems of animal production.

This readjustment will come only through a detailed knowledge of the reactions of the parasites both during their free life in the pastures and during their parasitic life in the grazing animal.

Development

The outline of the life history of the parasites is comparatively straightforward. The adult female worms, situated in the lumen of the intestine, lay eggs which pass out of the grazing animal and on to the pastures. In the course of about 24 hours these hatch and give rise to minute larvae which, during the course of a week, cast their skin twice and reach the infective stage, at which they are ready to proceed with parasitic life as soon as they happen to be picked up by a suitable grazing animal.

For the proper understanding of the development of worm diseases there are three important points which require special consideration. **The first of these is the inability of parasitic worms to multiply in the body of the animal in which they are living.** This constitutes an important peculiarity in

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