

Poultry Parasites New To North Dakota

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Many parasites which produce disease in domestic animals and birds are dependent upon intermediate hosts for continuation of their life cycles. The adult parasite inhabits the turkey, cow, chicken or any other animal that happens to be its specific host and lays eggs which are passed out in the fecal material. These eggs or the embryos which hatch from them enter the body of a mite, a snail, a flea or other insect, shellfish, etc. that happens to be the specific intermediate host of the parasite involved.

In the case of the infected mites and fleas, the eating of the insect by the host brings about the development of an adult egg-laying parasite again. In the case of the snail, small larvae-like bodies called cercariae escape from the snail and encyst on sprigs of grass or other objects in anticipation of being eaten by the specific host and becoming egg-laying adults.

The above types of life cycles are common to the tapeworms and flukes which inhabit the small intestine, liver, oviduct and other organs of the body.

There is another type of life cycle which is common mostly to parasites of the blood. In this type the adult parasite finds his home in the circulatory system of the host and there produces larvae-like organisms called ookenetes which are picked up by the blood sucking insects such as mosquitos and flies. The infected insect in turn bites another host, and if the parasite has completed its stages of development in the insect, it leaves to infect its specific host to complete its development.

Most of these intermediate hosts are dependent upon the presence of water for their survival at least for a portion of their life cycles. With the coming of irrigation, water will be available to more snails, flies, mosquitos, etc., in more areas in North Dakota. Also, when flooding rivers and streams subside they leave behind them pools of water and dampness which are ideal breeding spots for mosquitos, flies and other insects.

In the diagnostic work in the veterinary science department, two parasites which have not been reported as being present in North Dakota and one parasite which seems to appear in wet years came to our attention last summer (July, 1950). All of these parasites have fowl as their specific host.

In one flock of turkeys located in the Red River Valley we have found a blood parasite, *Haemoproteus* sp. (1). Two other turkey flocks from which we examined specimens were suspected of harboring the same species. This parasite is said to do little harm

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but at times it has been reported to cause some disability. *Haemobosca* spp. are reported to be transmitted by flies of the hippoboscid group but some workers believe other insects might act as vectors. However, to date only flies of the hippoboscid group have been definitely proven to be intermediate hosts. This fly normally does not live through the winters in North Dakota nor does it require pools of water for breeding grounds. The eggs are deposited in fecal material and require a certain amount of moisture for their development, but on well-irrigated land this moisture is more likely to be present than on dry land. With the increase in the available breeding grounds for the insect enough animals might become infected to produce economic loss.

In one chicken from a flock of 300 located on the Sheyenne river, a species of cecal flukes, *Notocotylus attenuatus*, (2) (3) was found. The chickens in this flock were reported to have a general unthriftiness with no specific symptoms. Sixty flukes, many of them immature, were found in the one chicken submitted for diagnosis. These flukes are not extremely pathogenic; however in large numbers they cause inflammation of the rectum and ceca and in some cases necrosis of the cecal mucosa. In the birds submitted there was a small amount of necrosis present in the mucosa. *Notocotylus attenuatus* has a snail as its intermediate host.

Another parasite which we have observed in one flock of turkeys this past year and in turkeys and ducks in the summer of 1944 is *Leucocytozoan smithi*. Volkmar (4) reported its presence in North Dakota in 1929. This parasite has as its intermediate host the simuliid fly or the "no-seeum fly" which Dr. J. A. Munro of the entomology department has reported to be present in large numbers in 1950.

Infection by this parasite caused quite severe symptoms and in some instances death of the bird. The case diagnosed last summer was located in the Red River Valley.

The increase in numbers and kinds of parasitic diseases could be due to the heavy rainfall in the spring and the flooding rivers and streams. All of the instances of parasitic disease reported here were located in river valleys.

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