

For

Recomplements

After

1929

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Zoological Division's Field Station at the
Beltsville Research Center

In Finance
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The Zoological Division's field station at the Beltsville Research Center was developed to provide, through fundamental research under the direction of the Principal Zoologist, In Charge, and the project leaders, a basis for controlling the internal parasites of livestock and poultry. The work at this station involves the study of the various protozoan and worm parasites, their life cycles, and methods for their control. Important among these investigations are the development and standardization of drugs having parasitocidal properties which may be used either alone or in combination with husbandry practises to effect control or eradication of the various important parasites of livestock and poultry.

The research is carried out under the following work projects: Investigations of anaplasmosis of cattle; Bovine trichomoniasis; Coccidiosis of sheep, goats, and swine; Coccidiosis and other protozoan parasites of poultry; Worm parasites of horses; Worm parasites of sheep and goats; Worm parasites of swine; Parasites of food animals of importance in meat inspection (in cooperation with Food Distribution Administration); Parasites of dogs, wild animals, and birds that may be transmissible to livestock; Index-catalogue of medical and veterinary zoology and maintenance of collections; and Investigations for the development of treatments for the removal of internal parasites.

The work of all these projects has been reorganized to conform more closely with the nation's needs during wartime conditions. This reorganization, admittedly, has been slight since the purpose of the Division, whether under peace or wartime conditions, has been to discover ways and means to prevent losses from parasites; this is the Division's only objective. The results obtained in the various projects form the basis of measures for the

control of the important parasites of food animals and contributes to the war effort in making possible increased production of meat, wool, and eggs. The outstanding results of the Division's work at the Beltsville Research Center are briefly as follows:

(1) The development of new treatments for the removal of worm parasites of domestic animals and poultry. This includes the introduction of phenothiazine for the removal of ascarids and nodular worms from swine, stomach worms, nodular worms, hookworms, and strongyles from sheep and goats, and strongyles from horses, including the control of these parasites by the administration of small daily doses of the drug in the feed; fuadin for removing heartworms from dogs; normal butyl chloride for removing ascarids and hookworms from dogs, and strongyles from horses; and barium antimonyl tartrate for removing gapeworms from poultry and related game birds.

(2) Solution of life histories and modes of transmission of important roundworm and tapeworm parasites of poultry.

(3) Discovery that a species of trichomonad produces in turkeys a disease closely resembling blackhead.

(4) Demonstration that bovine venereal trichomoniasis is a widespread and important disease of cattle; the discovery of an improved method of diagnosing the infection in females and the location of the infection in males; and that the infection may, under some circumstances, be transmitted through artificial insemination.

(5) Demonstration by experimental methods of the injury caused by stomach worms, nodular worms, and small trichostrongyles of ruminants.

(6) Demonstration that larvae of the stomach worm, nodular worm, and other injurious internal parasites of sheep will not survive under pasture conditions for more than 4 months in the area studied, indicating

that the worms carried over in their hosts from one season to another constitute the important source of infection. These facts form the basis of a control program which involves treatment of the breeding flock with phenothiazine in the late fall and early spring and then placing the sheep on pasture which has been allowed to lie idle over winter.

(7) Studies on the survival of eggs and larvae of important swine parasites have shown that the eggs of the large roundworm in cultivated soil may remain viable for as long as 5 years, that lungworm-infested pastures may remain dangerous to pigs for as long as 4 years, and that embryos of thorny-headed worms survive in the soil for as long as 4 years, and that infective larvae of swine nodular worms on permanent pastures may remain alive for as long as 1-1/2 years. These facts are of basic importance in the formulation of control measures for the parasites in question. A recent discovery that the minute intestinal threadworm of pigs causes extensive losses due to stunting and failure to make adequate gains re-emphasizes the importance of parasite control.

(8) Determination of the incidence of trichinae in swine, showing that about 6 percent of garbage-fed swine harbor trichinae larvae whereas only about 1 percent of grain-fed hogs are infected.

The station comprises approximately 110 acres of land, of which about 65 acres are cleared and improved. The improvements consist of an administrative building, which contains the offices of the Superintendent and his staff and the index catalogue; a main laboratory building; a building for swine parasite and trichinosis investigation; a laboratory for the study of anaplasmosis of cattle; 3 buildings for poultry parasite investigations; and a small laboratory for use of the Food and Drug Administration of the Social Security Agency. In addition, there are 5 barns for sheep, cattle, swine, and horses, as well

as 70 miscellaneous buildings and shelters for the different kinds of animals. The station is also provided with an incinerator, garage, and implement buildings, and miscellaneous structures. The laboratories, barns, and larger buildings are all heated with hot water from individual furnaces.

The laboratories are equipped with the usual furniture and work tables, incubators, refrigerators, sterilizers, centrifuges, microscopes, and instruments of precision, as well as glassware and chemicals.

The farm is divided into about 54 plots, varying in size from 1/4 acre or smaller to 5 acres, which are used as pastures for such animals as sheep, cattle, horses, and swine or for small scale field experiments. One 5-acre plot is set aside for the work of the Food and Drug Administration.

About 500 large animals, including horses, cattle, sheep, goats, and swine, and about 1200 chickens and turkeys are maintained for experimental purposes.