Breakthrough In Marek's Disease Studies Reported By Merck Sharp & Dohme Researchers

Research at the Merck Sharp & Dohme Research Laboratories is utilizing two important breakthroughs in the study of Marek's disease This disease costs United States poultry producers an estimated 200 million dollars a year. These critical breakthroughs are the ability to grow the herpesvirus associated with Marek's disease in tissue culture cells, and the development of simple serologic tests Because of these advances, scientists now have the tools necessary for rapid advancement in the control of the disease, reported Dr Theodore A Maag, supervisor of research in avian leukosis at Merck.

Dr Maag has written about Marek's disease in the current issue of The Merck Agricultural Memo, published as a service to animal agriculture by Feed Products, Merck Chemical Division

Marek's disease is essentially a conglomeration of tumorous like disorders of young birds Skin, nerves, liver spleen, kidney, heart and muscle are involved Although tumors and associated conditions are comparatively new problems to the broiler industry, they are now the major disease of broiler, as well as replacement birds, breeder or layer operations

Marek research at Merck began several years ago when investigators worked with a broiler from Delmarva They isolated a strain, now known as MSD-1, which showed only neural and skin lesions

Investigators hoping to isolate the disease-causing agents believe that a herpesvirus is closely associated with Marek's disease A few researchers, including Dr Maag, believe that at least one other virus is involved

According to Dr Maag's article in the **Agricultural Memo**, Marek's disease may be at least two disease syndromes One is inflammatory, seen as uncomplicated nerve and skin lesions The second is lymphoproliferative, and is recognized by neoplastic-like lesions of the kidney, liver, spleen, gonads, muscle and heart Susceptibility appears to be different for each breed, and the method of infection may also differ

Bird-to-bird transmission is probably limited to close contacts and results mainly from infections through the respiratory tract. On the other hand, egg-transmission is probable but not confirmed.

One thing is certain, the disease is costly. In addition to economic losses clearly attributable to Marek's disease, the poultry producer may suffer secondary losses. For example, Marek's disease impairs the birds' mechanism for resistance to other disease. Therefore, birds harboring Marek's disease are more susceptible to other infections agents, coccidiosis being foremost This could explain why coccidiosis is often associated with Marek's disease But which comes first? Dr Maag believes that Marek's disease induces the occurrence of clinical coccidiosis and not vice versa Coccidiosis does not influence Marek's disease.

Reviewing future methods to control Marek's disease, three routes are possible and warrant some hope, says Dr Maag

The immunological approach, appears to offer the greatest possibility of success in the near future The genetic approach will probably have limited success, but should be tried At present, it is the only method that has proved fruitful The third approach is that of prophylaxis or therapy with drugs So far all attempts to attack virus diseases and cancer with drugs have been extremely disappointing However, as scientific knowledge increases, joint efforts of chemists and biologists may one day be rewarded

Purdue Agronomist Reports Experiment

Purdue agronomist Stanley A Barber says that Corn Belt farmers can apply potassium and phosphorus at times other than planting and still depend on high yields

In the August September (1969) issue of Crops and Soils Magazine, Barber reports on a sixteen-year experiment at the Purdue Agronomy Farm, where both broadcast and row applications of phosphorus and potassium were studied

In both the row and broadcast applications of phosphorus, corn yields the fourth year after application were almost as high as yields the year the fertilizer was applied Thus potassium could be applied on the test soil at any convenient time and still be used effectively

Broadcast applications of phosphorus were more effective in producing high corn yields than were row applications alone. Phosphorus applied by the row increased corn yields ten bushels an acre Where phosphorus was broadcast and plowed under, yields were as much as five bushels higher than the best yields from row application of equivalent amounts.

Broadcast applications worked well with potassium, also, but the Purdue researchers found potassium less flexible than phosphorus There was greater fixation by the soil and greater removal by the crop A single potassium application was found to be relatively effective for two years. This means that there is still flexibility in the time of application, even though the residual effects of potassium are not as great as those for phosphorus

Many farmers are already using this system of fertilization with excellent results, and though it may not work for all soils. Barber believes it applies to a large portion of the Corn Belt. At the rates of fertilizer used today, he says, phosphorus and potassium can be applied mainly as broadcast applications.

Hunter Safety Requirement

The Pennsylvania Game Commission this week again reminded youths of the hunter safety training requirement for purchasing a hunting license

After September 1 1969 no hunting license shall be issued to any person under the age of sixteen years unless he presents evidence that he has held a hunting license issued by the Commonwealth of Pennsylvania or another state in a prior year or a certificate showing that the youth has satisfactorily completed a hunter safety course such as administered by the Pennsylvania Game Commission

Thousands of youths have already taken advantage of earlier opportunities to complete the hunter safety requirement Additional youngsters will have taken the course before the summer ends, so that they will be able to qualify for the 1969-70 hunting license which will be effective September 1

Anyone having questions concerning the provisions of the new law should consult with a local district game protector