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Vaccination Program Against Pseudorabies

results," says Dr. Tulleners. "They prove to us that the team concept and the carefully devised anesthetic approach enables us to safely and efficaciously treat these animals with no long term adverse

effects. The key is that every member of the team knows what to do so we can be extremely efficient and keep anesthesia time to a minimum. It is wonderful to watch these horses regain their stamina

and go back to work, fit and quiet. We have now treated over 70 draft horses from 15 states and three Canadian provinces."

Vaccination Program Against Pseudorabies

Pseudorabies, also known as Aujeszky's disease, is a viral disease of swine causing reproductive failure, neurologic signs and death in baby pigs, and respiratory disease in growing swine. In 1989, a national pseudorabies eradication program was initiated after consideration by state, federal, and industry leaders of the costs of such a program and potential benefits to the swine industry. The goal of this program is elimination of pseudorabies from the national swine population by the year 2000. Progress towards this goal was slow at the beginning of the program, but has been gaining momentum in recent years. Currently, about 3,500 of the nation's 200,000 swine herds are quarantined for pseudorabies infection.

On these quarantined farms, procedures to control the disease are carried out. These procedures include segregation of different age groups, removal of infected animals, and vaccination of breeding and growing swine. Vaccination or the natural infection induces high levels of antibody to appear in the colostrum of sows, and this antibody is passively transferred to their progeny soon after birth. This antibody protects the young pig against natural pseudorabies infection, but also has the potential to inhibit pigs' response to vaccine given later in life. This phenomenon is well recognized and evidence for this inhibition is obtained via serological sampling.

Dr. Paul M. Pitcher, clinical educator in the Department of Clinical Studies - New Bolton Center, spent two years with USDA-APHIS, Veterinary Services assisting Pennsylvania Bureau of Agriculture officials in the State-Federal-Industry cooperative program to eradicate pseudorabies. During his tenure there, he

worked with many quarantined producers in establishing effective cleanup plans. Typically, serial sampling of a cross-section of pigs of various ages was carried out as part of establishing vaccination programs on these farms which would be effective in controlling the disease. The results of these investigations indicated that the response of piglets to pseudorabies vaccine could be predicted based on semi-quantitative interpretation of antibody levels at the time of vaccination.

Dr. Pitcher, after joining the School's faculty in July, 1994, built on experience gained in pseudorabies control and utilized his work with the USDA as pilot work for a controlled field study to further investigate the interaction between passively transferred maternal antibody to pseudorabies and the response to pseudorabies vaccine. This study, completed last summer, used pigs in two commercial units - one at New Bolton Center, one in Lancaster county. Nearly 1200 blood samples were collected and analyzed at BAI's Summerdale laboratory for the presence of pseudorabies antibody.

Results of this investigation showed that pigs from non-immune sows exhibited no impairment of immune response to pseudorabies vaccine, even when vaccinated as young as six weeks of age. Pigs from immune sows exhibited inhibition of the primary serologic response to vaccine if antibody levels were in the "positive" range of an ELISA test at the time of vaccination.

One of the most encouraging findings of this study was that pigs demonstrated

immune system priming and an anamnestic serologic response to pseudorabies vaccine, even if the primary serologic response was completely inhibited due to high levels of maternal antibody. These findings have important implications for the design of vaccination programs in swine herds infected with pseudorabies. If sustained antibody levels are needed, pigs from sows immune to pseudorabies should be booster vaccinated against pseudorabies. That is, pigs need to receive two doses of vaccine, at least two weeks apart in order to be fully protected against natural infection throughout the growout period. A single dose of vaccine is insufficient to stimulate a biologically significant response in such pigs. Evidence for immune system priming should be encouraging to producers battling the disease in their herds, because it means that benefits are being realized from the initial dose of vaccine, even though no serologic response occurs. The findings also have important implications for immune responses to other antigens.

Dr. Pitcher presented the findings of this work to practitioner groups at the 27th Annual Meeting of the American Association of Swine Practitioners in Nashville in March, 1996 and the 14th International Pig Veterinary Society meeting in Italy in July, 1996. In addition, a pamphlet will be prepared for distribution to swine producers via the Pennsylvania Animal Health and Diagnostic Commission, and the work will be published in a peer-reviewed journal later this year.

