Pseudorabies Study Initiated on Ossabaw Island

SCWDS Briefs, April 1992, 8.1

Pseudorabies (PRV) is a viral disease of swine that causes abortions in sows and fatal illness in newborn pigs. Older swine do not become sick but can be lifetime virus carriers. Cattle, sheep, dogs, cats, raccoons, foxes, and small mammals can become infected accidentally, and these animals will die suddenly of virus-induced nerve and brain damage. People do not become infected. The presence of PRV in domestic swine is responsible for an estimated $30 million annual expense in production losses, market restrictions, and vaccination costs.

Surveys conducted by SCWDS and other researchers have revealed that wild swine commonly harbor PRV. Infection has been found in 12 states (AL, AR, CA, FL, GA, HI, LA, MO, MS, OK, SC, and TX). A nationwide PRV eradication program for domestic swine has been undertaken through the cooperative efforts of the USDA, state animal health agencies, and pork producers, and substantial progress has been made. There have been no attempts to control or eradicate PRV from wild swine, however, and these animals will remain as perpetual reservoirs for the virus unless effective methods are found to eliminate the disease in the wild.

Among the options used to control or eliminate PRV from domestic pigs is vaccination. Currently available injectable PRV vaccines increase host resistance and reduce virus shedding by carrier pigs but do not prevent or eliminate infection. If it were feasible to vaccinate wild swine, perhaps the reduced virus shedding would be sufficient to eliminate infection from these relatively dispersed animals. The best method for vaccine delivery to wild swine would be oral baits. Although oral vaccines that could be used to protect wild swine are not available at this time, rapid advances in vaccine technology are being made that may soon result in such products.

In order to test the effectiveness of a vaccination strategy, SCWDS is conducting a feasibility study on the wild swine on Ossabaw Island, Georgia. To evaluate the effect of vaccine against PRV, Ossabaw Island will be divided into 2 areas, 1 for vaccination and the other for control. Baseline antibody prevalence will be determined for both areas prior to vaccination, and a commercial injectable PRV vaccine will be administered to as many swine on the vaccination area as possible during a 2-year trap/mark/vaccinate and release program. Current data indicate that approximately 25% of the adult swine on Ossabaw Island are PRV carriers. Hopefully, an intensive vaccination program (50-70%) for juvenile pigs will lead to a significant reduction in PRV infection as the study progresses. If this effect is achieved, the study should provide momentum for oral PRV vaccine development and use in wild swine in other locales.