FINAL REPORT

I. Project title: Assessing the efficacy of test and removal for the elimination of PRRSV from a 2500 sow herd with a history of PRRSV vaccination.

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II. Stated objectives from original proposal:

1. Determine the efficacy of T&R in breeding herd of > 1000 sows with a history of modified live PRRS virus vaccine use.

III. Introduction:

Similar to other states, the Minnesota swine industry has experienced an increase in herd size and use of PRRS virus (PRRSV). Since control of PRRS appears to be more difficult in larger herds, attempts to eliminate the virus from infected breeding herds have been developed, one being Test and Removal (T&R). T&R consists of conducting a test of the entire breeding herd on a given day, and removing animals with evidence of previous viral exposure. Due to the lack of a differential test to distinguish antibodies produced from vaccination versus those produced by field virus infection, the question was raised whether T&R could be applied to herds of this size and vaccine history.

The primary risk involved with this procedure would be the removal of vaccination and the possibility for increased shedding and transmission of field virus, resulting in a new outbreak. Therefore, an agreement was made with the farm owner that if evidence of field virus shedding following the removal of vaccine was detected, the project would be terminated, the herd would be re-vaccinated, and the remainder of the funding returned to MPPA.

IV. Observations:

The study started off very well. During the summer of 2000, the herd was closed to outside replacement stock and vaccine was removed from the farm for approximately 3 months. Monthly assessment of indicated a reduction in herd seroprevalence from 50-30% and PRRS negative sentinel animals had remained seronegative for 3 consecutive months of testing. However, prior to initiation of the test and removal procedure, a new outbreak of PRRS occurred in November 2000, resulting in 110 abortions and pre-weaning mortality levels > 20%. The new virus was sequenced and found to be heterologous to the initial strain that infected the farm in 1996. Therefore, the initiation of the test and removal procedure was delayed, the herd was re-vaccinated, and a 6-month extension of the project was granted by MPPA. Due to the desire of the producer to attain a PRRS-negative status, the project was attempted one more time. Unfortunately, removal of vaccine resulted in increased shedding of field virus, and due to the potential risk of another outbreak and further financial loss, the project was officially terminated. therefore, we wish to request a 6-month extension.

V. Summary:

Despite the inability to complete the project, valuable information was still recovered. We learned that while commercially available vaccines did an excellent job at controlling the disease of PRRS, elimination of the virus is challenging due to a lack of differential antibody tests. Furthermore, removal of vaccine resulted in elevated shedding of field virus and raised too much risk for the producer.

Perhaps the most valuable lesson learned from the project was the unique way that sentinel animals were used. Sentinel animals are typically PRRS-naïve replacement gilts, housed

in the gestation facility that are tested regularly in an effort to ascertain exposure to field virus following renewed replication and shedding. Frequently 30-60 such animals are identified as sentinels and are tested every week. In our project, naïve Vasectomized boars were used instead. These animals (n = 4) were allowed to have continuous nose-to-nose contact with pens of weaned sows (1 boar/pen of weaned sows), along with 30 minutes of physical contact each day during the estrus detection period. In our project we consistently detected infection of the sentinel boars before the infection was detected in the sentinel gilts. This also resulted in fewer animals to test and reduced cost of testing. Therefore, the use of sentinel boars housed in close contact with weaned sows was very proactive in early detection of shedding, allowing for rapid project termination and re-vaccination, before large herd susceptibility issues were encountered.