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# Utilizing PRRS modified SN to Identify “At Risk” Populations & Their Response to PRRomiSe® Vaccine in Larger Swine Herds

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**Introduction:** Commercial swine production in the USA has experienced the challenges of porcine reproductive and respiratory syndrome (PRRS) virus and its disruptive effect upon efficient swine production systems since 1989.<sup>1,2,3</sup> Currently, sow herds greater than 1000 females per site have continued to report unstabilized reproductive performance.<sup>4</sup> This pilot study utilizes the PRRS modified SN test to assess status and identify “at risk” population of 1000 females or greater per site.<sup>5,6</sup> Once “at risk” populations were identified and third trimester reproductive failure occurred, phase II vaccination with PRRomiSe® (killed virus PRRS vaccine from Bayer Corporation) was implemented. PRRS modified SN test response was evaluated in serial testings comparing identified populations with vaccinates. This pilot study encompassed seven units with one subsequently becoming a phase II project.

**Study Design:** Commercial swine units were selected utilizing the following criteria:

## Phase I

1. Greater than 1000 female per site
2. Herd History
  - PRRS virus isolated & confirmed
  - chronic endemic PRRS with third trimester reproductive loss within last six months
  - concurrent nursery/grower/finisher performance concern
3. All units within a “system” had similar genetics, nutrition management, vaccine utilization, and replacement animal source.
4. Parity weighed herd sampling
5. Diagnostic analysis PRRS modified SN

## Phase II

1. Identification of “at risk” sow population
2. Documented 3<sup>rd</sup> trimester reproduction failure
  - vaccination of identified “at risk” populations with PRRomiSe®
3. Post vaccination Phase I populations were serial bled and PRRS modified SN diagnostics utilized.

**Data:** Seven farms were reviewed and qualified for Phase I of study. Parity weighed samples, n=30, were collected from each herd and PRRS modified SN tests were conducted by Dr. H.S. Joo, University of Minnesota on March 5, 1998. Serological results were graphed on graph 1 and 2.

Farm seven was the first to experience reproductive failure with fifteen abortions occurring during the week of May 7, 1998 all within the projected “at risk” population. PRRomiSe® vaccine was administered to the “at risk” population on May 7 & 24 of 1998. Post vaccination bleeding occurred on June 8, 1998. Of the original 30 sows, 27 were present for Phase II analysis in graph 3.

**Discussion:** The PRRS modified SN diagnostics utilized in parity weighted sample in the greater than 1000 sow units readily identified “at risk” population for PRRS. Seven farms were sampled and graphed. The analysis for “at risk” population were females’ with SN titers <1:16. Serologically all farms sampled were classified as “unstable” and this was confirmed by farm manager’s and veterinarian’s clinical observations.

Phase II part of the study demonstrated a dilution titer response to PRRomiSe® vaccine within two

weeks post vaccination. Vaccine utilization reduced the “at risk” parity population profile. Additional analysis of herd seven’s profile “at risk” population revealed a reduction from 78% to 34% with vaccination. With a parity weighted sampling of n=30, in this pilot study, the data presented demonstrates only trends and mathematical improvements. Subsequent investigations will be designed for statistical analysis.

**Conclusion:** The results from this pilot study have stimulated further investigation. The focus will utilize the PRRS modified SN serology to identify the “at risk” populations of large commercial swine units experiencing unstable PRRS status. The “at risk” SN levels 1:8, 1:16, 1:32, 1:64 will require further testing in a controlled research model. Reduction of “at risk” population utilizing PRRomiSe<sup>®</sup> in this Phase II was encouraging and will be investigated in the future with increased numbers and serial testing. It is recognized by the author that the field virus exposure in the Phase II study may be a contributing factor to the serological responses documented in graph 3.

**Reference:**

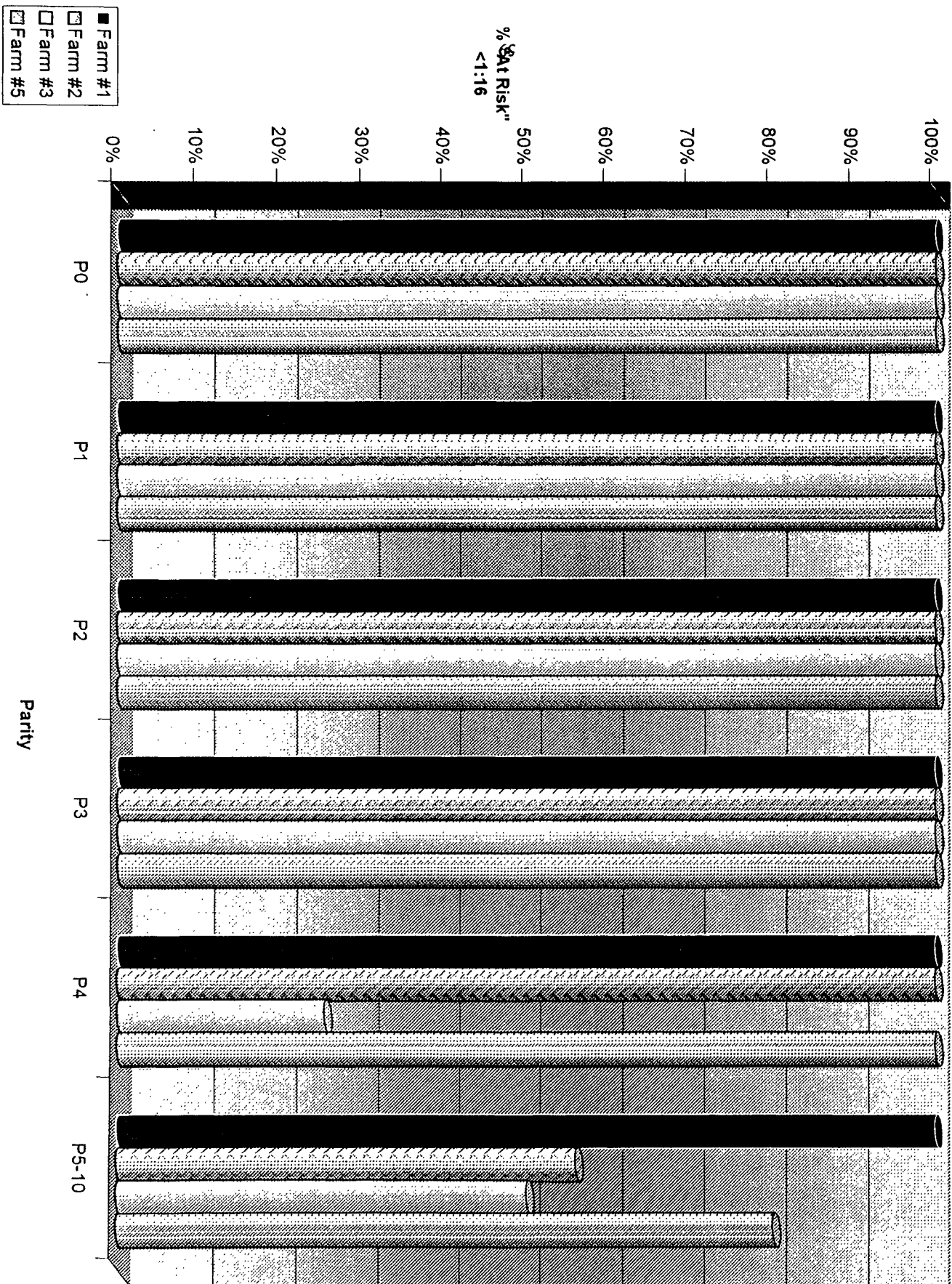
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Graph 1

**Parity Weighted Herd Profile**

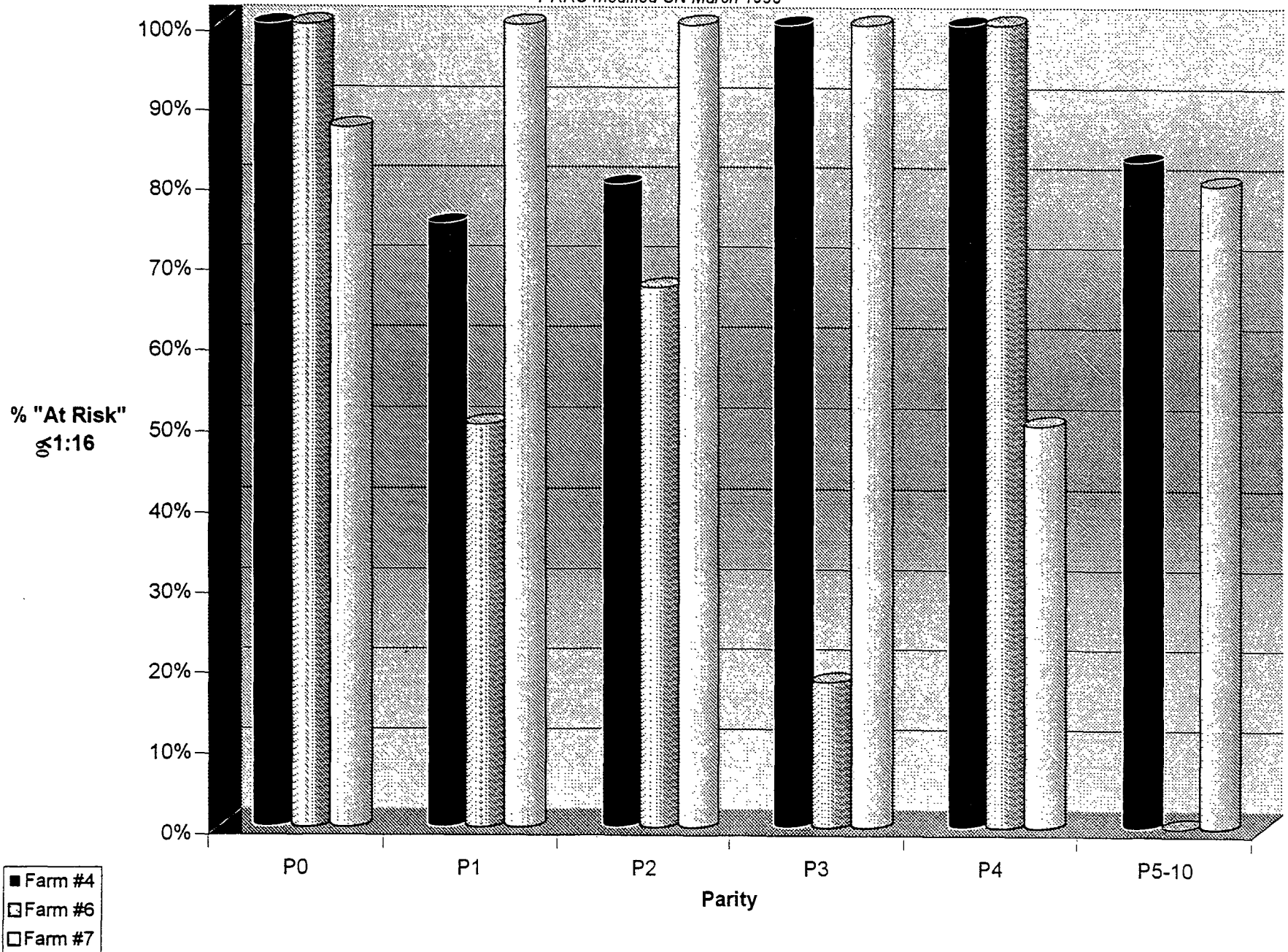
*PRRS modified SN March 1998*



Graph 2

### Parity Weighted Herd Profile

PRRS modified SN March 1998



Graph 3

**Farm #7**  
"At Risk" Population  
Pre vs Post Vaccination with PRRomiSe®

