From the Pig to the Profit and Loss Statement:

The Financial Side of PRRS

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1.0 Introduction:

Since its first description in the U.S. as an mystery swine disease in 1987 (Dodd and Patterson, 1987) through today with its recognition as PRRS, this disease has had a huge impact on the swine industry—not only in terms of biological performance, but also through the resulting financial consequences PRRS is perceived.

Anyone who has encountered PRRS is well aware of its ability to devastate sow herd performance (Figures to be included with the full paper) (Polmar et al., 1998) and chronic performance issues in the post-weanling pig (Figure to be included with the full paper) (Reiffer, 1995). We have also become more aware of the financial consequences of PRRS (Polmar et al., 1992; Polmar et al., 1994).

2.0 The Financial Impact of PRRS in the Breeding Herd

Hefflar (1992) estimated the cost of an acute breeding herd outbreak in first litters to be $100, $170, $425, and $510 per breeding female, respectively. Polmar et al., (1993) described an acute four-month outbreak in a 281 sow Minnesota herd, resulting in a cost of $236 per breeding female for the year of outbreak. This cost was calculated primarily by lost opportunity for revenues on farmed pigs that would have otherwise been produced has had the outbreak not occurred (derived from the average period for the previous three years). This opportunity lost represented a reduction in pigs weaned per female per year of 3.8, and translated into a decrease in profit of $597. For the year of the outbreak, the increase in profit per sow was $92 ($20.75 per 104 pigs).

Using the corrected average variable cost (MCOC) method, Polmar estimated the cost of a herd (1) percent decrease in farrowed piglets is equivalent to a potential loss of $60.00 to $90.00 per female per year, and a 0.1 percent decrease in farrowed piglets is equivalent to a potential loss of $5.00 to $7.50 per piglet per year. These ratios of value loss to output in performance can be proven to be the result of PRRS virus infection.

10.0 The Breeding Fundamentals

There are currently as published reports in the literature documenting costs, if any, of increased medications/vaccination costs due to the effects of PRRS and any secondary agents in the swine breeding herd.

3.0 The Financial Impact of PRRS in the Growing Pig Herd

Kellerham et al., (1992) reported the effects of PRRSV-1 virus and mumps virus on pigs from two farms. These same farms were reported on by DeWitt et al., (1991) as having both PRRS virus and mumps virus. Both mumps virus and virus vaccination were used to confirm the development of PRRS virus.

Hefflar et al. (1993) described an outbreak of PRRS virus in swine on a commercial from April, 1987 through a total of 600 sow farrowing operations. PRRSV infection was confirmed by IFA test, with 113/60 breeding herds and 211/60 market pigs tested positive for antibody (O’Donnell, 1987). While reproductive performance remained at pre-outbreak levels for three months, mortality was increased by remaining elevated. For the first 11 months, pre-weaning mortality was increased by 7.7 percent. For the 56 months following the outbreak, mortality remained at 2.4 percent as a result of a residual pattern of 3.4 percent of older pigs (1-6 months) mortality by a 0.6 percent period of higher (7.4%) mortality. Numerous vaccines to combat PRRS were described as continuous flow.

Hefflar et al. (1993) described an outbreak of PRRSV virus in swine on a commercial from May, 1987 through a total of 1000 sow farrowing operations. PRRSV virus infection was confirmed by IFA test, with 18/30 breeding herds and 26/30 market pigs tested positive (1-120). While reproductive performance remained at pre-outbreak levels for three months, mortality remained at an elevated level.

Improvement in both farmers’ use of antibiotic therapy, coccidiosis and vitamin supplementation, and other supportive therapy provided no significant long-term improvement.

Murphy (1993) observed that 5-week old pigs challenged intranasally with PRRSV virus (strain AECM, VR-2333) gained 5 pounds less than control pigs over a two-week period (p < .05) (compared to a control of average daily gain for the period of 0.36 pounds/day). Clinical lesions in these pigs were evaluated by routine post-mortem examination (slight fever, conjunctivitis, nasal discharge, and respiratory distress upon euthanasia).

These data are comparable with the change in ADG (0.30) observed by Hefflar and Joe (1998) in sows where performance was compared after and after partial (herd) depopulation/made replacement (Tables to be included with the full paper).

Reiffer (personal communication) observed an increase in mortality following a diagnosis of PRRS in a 10,000 sow farm. For the 18 month period preceding the outbreak, mortality mortality was 1.0% as shown on PIGCARE reports. For the 18 month period following the start of the outbreak, mortality mortality was to 3.5%. For the 18 month period following the start of the outbreak, pigs were monitored and housed in the nursery by the period.

Gosney et al. (1993) described a 300 sow reproduction farm with a history of various problems with PRRSV and Respiratory Syncytial Virus (RSV) in pigs. PRRSV was first clinically diagnosed in the herd in late 1991 (November), and was present in the herd when repeated testing and virus isolation procedures were available. Since routine testing for RSV have become available, PRRSV has been isolated from many pigs (December 1992) and acute respiratory syncytial virus (ARDS) of pigs have demonstrated an association to PRRSV (October 1992), as described by the immunologically syncytial (IYS) test. The herd has had a history of continuous mortality and high veterinarian/production costs since PRRSV was first clinically diagnosed (Figure to be included with the full paper).

During the two years prior to the herd’s initial clinical diagnosis (1990 and 1991) the herd’s annual mortality averaged 5.0% (1,400 pigs in two years) and whole farm veterinarian/production costs were $3,760 per pig (figure to be included with the full paper). During the two years following the diagnosis (1992 and 1993) the herd’s annual mortality increased to 8.7% (1,400 pigs in two years) and whole farm veterinarian/production costs were $5,545 per pig. The increase in mortality, as average 179 pigs per 1000 pigs per year, represents a substantial opportunity cost—a loss of $7,584 per year (at a margin-over-variable cost of $20 per pig). The direct cost of veterinary care and hospital products for the whole farm represents an additional cost of $10,044 per year.

DeWitt and Joe (1993) calculated in excess of 16-24 days to market as dizzy attributable to PRRS in combination with secondary bacterial agents. They estimated the additional cost to treat such pigs at $17.00 - $21.00 per pig. (Figure to be included with full paper). As shown in this figure, the herd’s initial mortality increased by an additional 100 pigs per 1000 pigs (Figure to be included with full paper). The cost estimates were based on a 10% mortality, a 10% reduction in average daily gain, and a 1.5% decrease in live weight.

Polmar et al. (1994) calculated the cost of increased medications/vaccination costs due to the effects of PRRS and any secondary agents in the growing pig herd.

These data are comparable with the change in ADG (0.30) observed by Hefflar and Joe (1998) in sows where performance was compared after partial (herd) depopulation/made replacement (Tables to be included with the full paper).

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