

Production and economic aspects of pig production sites involved in PRRS area regional control projects in Canada

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Introduction

Porcine reproductive and respiratory syndrome virus (PRRS) has affected Canadian swine herds for many years. There is little information available on the variability of the impact of PRRS on Canadian herds.

Materials and Methods

A study was designed to collect retroactive historical production data (2010-2012) from 205 Canadian production sites (sow units, nurseries and grow-finish units). Herd health status (PRRS-positive or negative) was defined either on a per site basis (sow herds) or on an animal batch basis (nurseries and grow-finish units). Production data was collected on an individual basis for sows, but on a batch basis for piglets and pigs. Researchers analyzed information from 78 sow units (42,727 sows), 658 batches of nursery piglets (1,066,213 piglets) and 720 batches of pigs (828,449 pigs). Approximately 75% of sow units and 66% of piglet and pig batches tested PRRS positive.

For each type of production unit (sow, nursery and grow-finish) the two production parameters the most tightly linked to PRRS were distributed on a scatter plot. The parameters for sow units were farrowing rates and piglet survival (Figure 1). Nursery and grow-finish unit parameters were corrected feed conversion and mortality rate (Figure 2 for grow-finish batches).

Figure 1

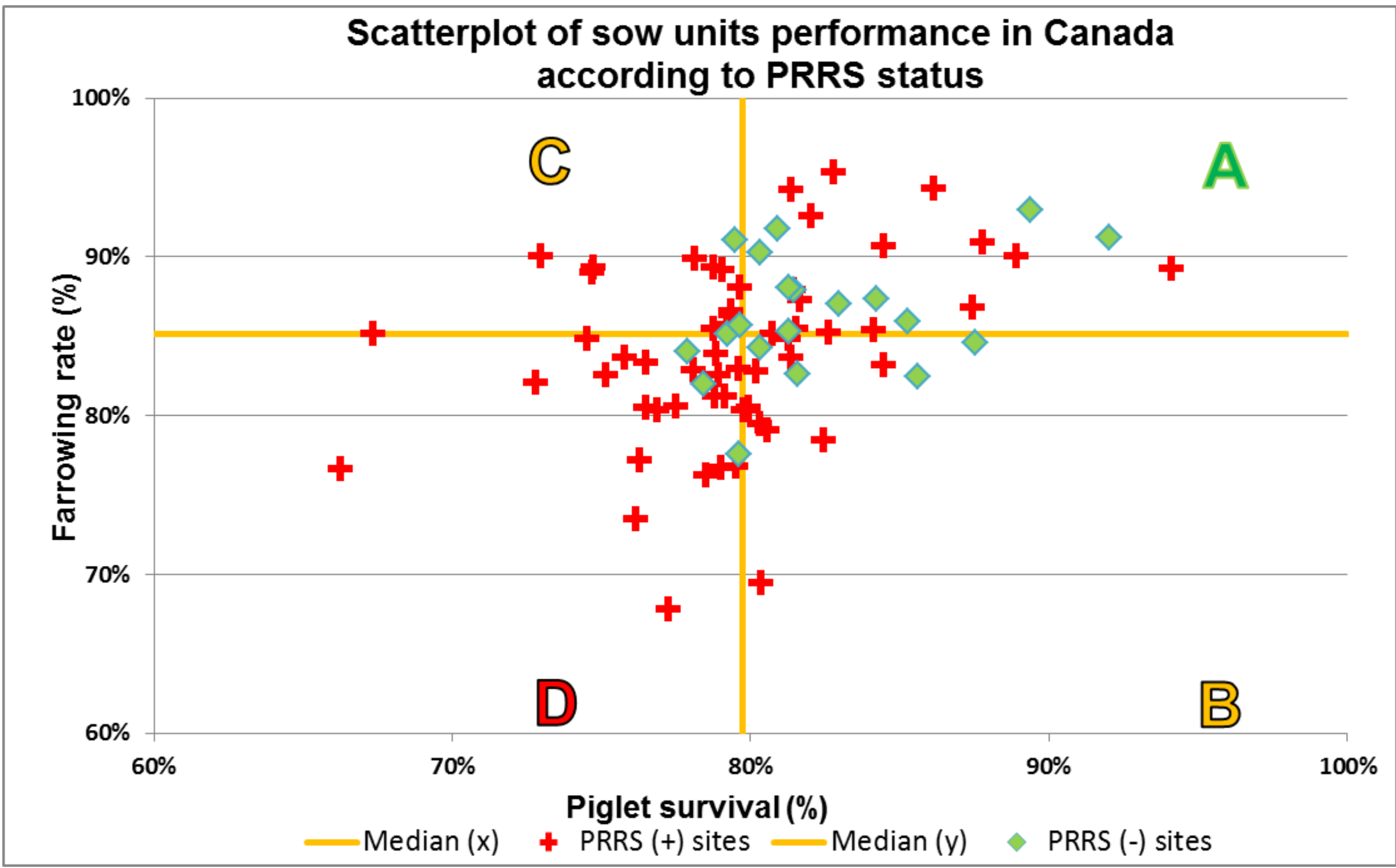
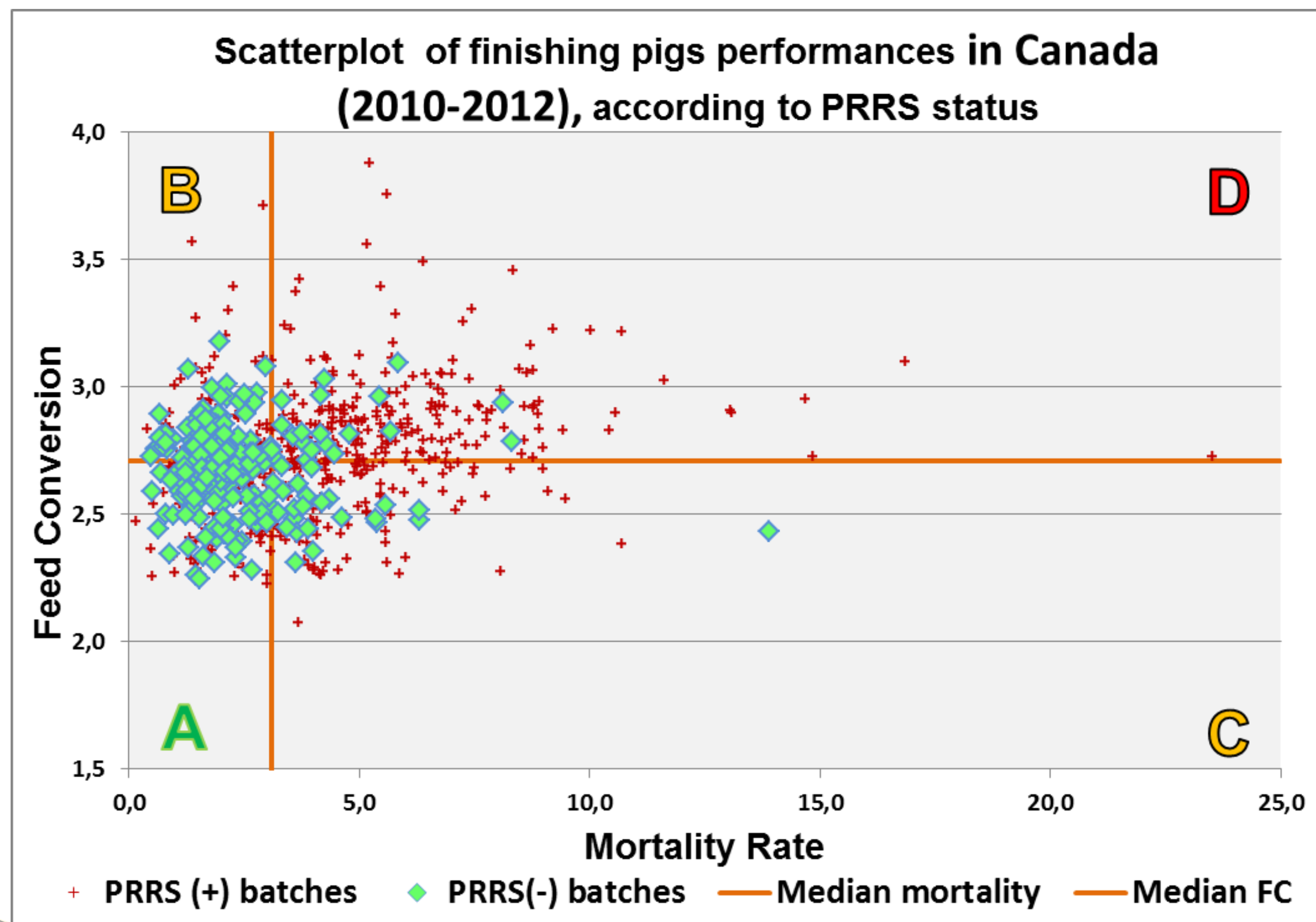


Figure 2



Results and Discussion

Impacts of PRRS varied. Some PRRS positive batches displayed severe performance deterioration while others showed performances equal to those that tested negative. Using the medians for each production parameter and health status, the performance data was split into three types of impacts of PRRS on a herd (Table 1): no discernible impact in quadrant A (25% of PRRS positive sites/batches), moderate impact in quadrants B and C (35 to 45% of PRRS positives sites/batches) and severe impact in quadrant D (30 to 40% of PRRS positive sites/batches).

Table 1

PRRS Impact on Herd Productivity

	PRRS (-) or PRRS (+) no impact	PRRS (+) moderate impact	PRRS (++) severe impact
Piglets weaned/sow in production	27.20	24.70	23.70
Nursery mortality	1.5%	2.5%	4.3%
Finishing mortality	2.5%	3.7%	6.3%
Nursery feed conversion- (6-25 kg; 13-55 lbs)	1.46	1.53	1.64
Finishing feed conversion- (25-120 kg; 55-264.5 lbs)	2.60	2.71	2.90
Nursery -average daily gain (g/day)	451.70	443.40	423.65
Finishing -average daily gain (g/day)	899.35	866.20	810.14

To estimate the costs of PRRS outbreak, a cost simulator was developed. Using feed and animal prices, researchers compared the income over feed costs margin for PRRS positive production sites to what the margin would have been, had these same sites test PRRS negative. Based on production data from the project and prices in 2011, estimated losses ranged from CAD\$116 million per year (if only 35% of Canadian sites test PRRS positive), to as high as CAD\$219 million per year for Canadian hog producers (if, as found in this study, 66% of sites test PRRS positive).

Conclusion

A survey was done on 205 Canadian production sites showing that production performances are affected by PRRS: feed conversion and mortality rates for nurseries and finishing barns along with farrowing rates and piglet survival for sow barns. The impact of PRRS varies from negligible to very high from one site to another. Three types of impacts were therefore established: none, moderate and severe.

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