



Centre de développement
du porc du Québec inc.

Evaluation of the impact of diseases in pig production on carcass and meat quality

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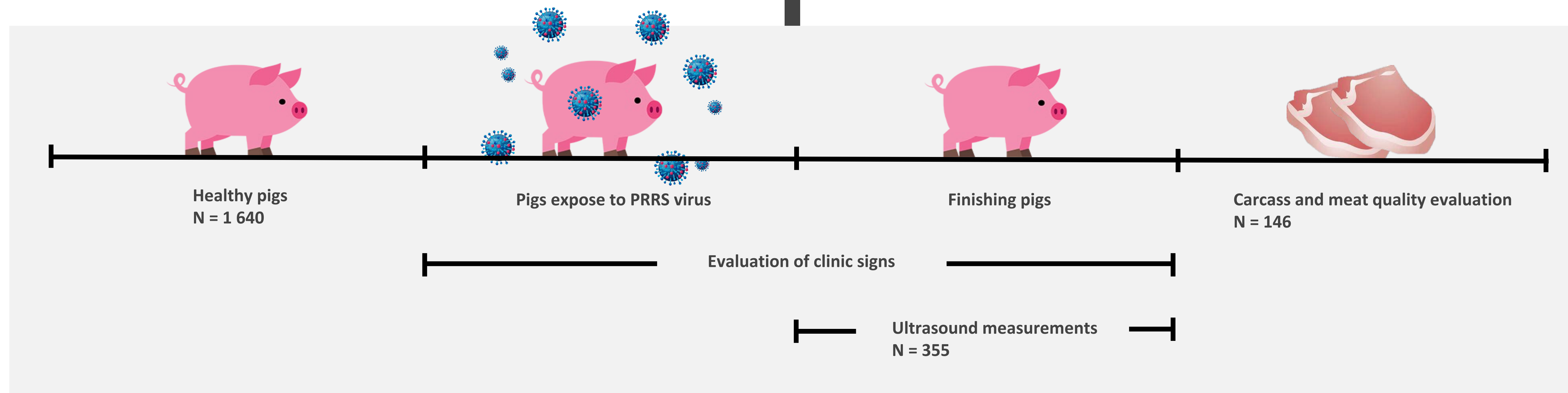
Introduction

- Porcine respiratory and reproductive syndrome (PRRS) is a swine virus that causes reproductive disorders in sows as well as respiratory diseases, reduced growth rates and increased mortality in pigs of all ages.
- The effects of diseases on growth performance and production cost are generally well known, but there is a great lack of information on consequences of the disease on carcass and meat quality, especially on the level of intramuscular fat.
- The level of intramuscular fat (IMF) is an important determinant of meat quality characteristics such as tenderness, water retention, and therefore, its acceptability by consumers.
- Studies on the impact of disease on carcass and meat quality have been conducted primarily in cattle and show that the presence of diseases influences the parameters of meat quality, mainly fat deposition and the level of marbling. No studies have been carried out in this regard in pigs.

Objectives

- The project aims is to assess the effect of diseases present in nurseries and fatteners on carcass and meat quality. More specifically, the project made it possible to measure the impact of the disease on growth performance in nursery and fattening, measure the impact of the disease on fat and muscle thickness, as well as intramuscular fat level in vivo and determine the effects of the disease on the quality of the carcass and meat, especially on the marbling of the loin.

Materials and methods



Well known production impact

Results for back fat thickness at the end of fattening (figure 1) show significant differences ($P < 0.05$) between uninfected pigs (14.7 mm), pigs infected in nurseries (13.9 mm) and fattening (12.8 mm) only, and pigs that have been ill both in nursery and fattening (12.4mm). These results indicate that the presence of diseases leads to a decrease in fat deposition in pigs at the end of fattening.

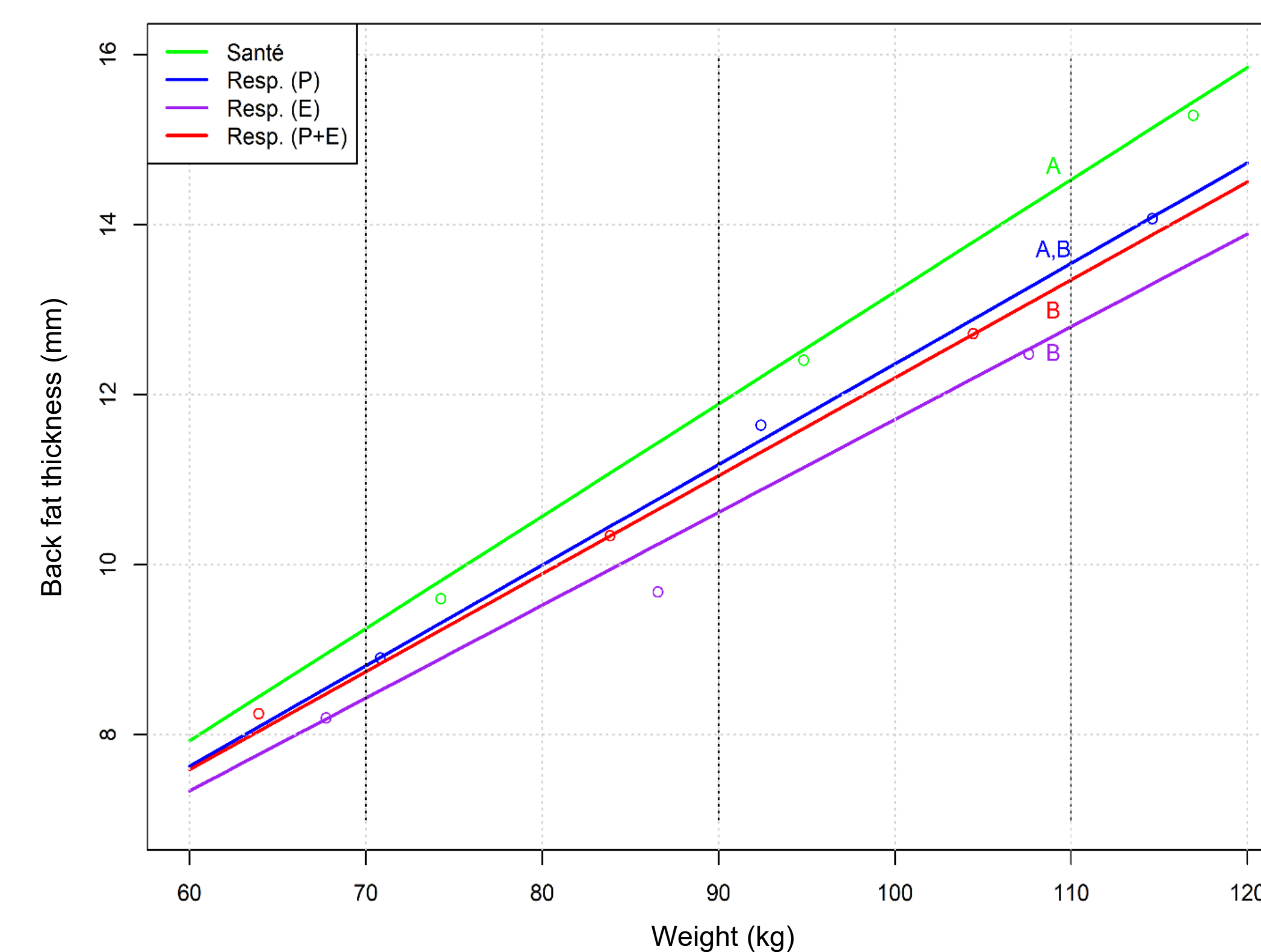


Figure 1. Impact of pigs' health on the back fat thickness. Different letters indicate a statistically significant difference at the 5% threshold

Well known production impact

The presence of PRRS and other diseases had a significant impact on the growth performance of pigs in fattening and demonstrates that the presence of the virus in the herd significantly decreases the average daily gain (ADG). This difference has a direct impact on the number of days in fattening (Figure 2).

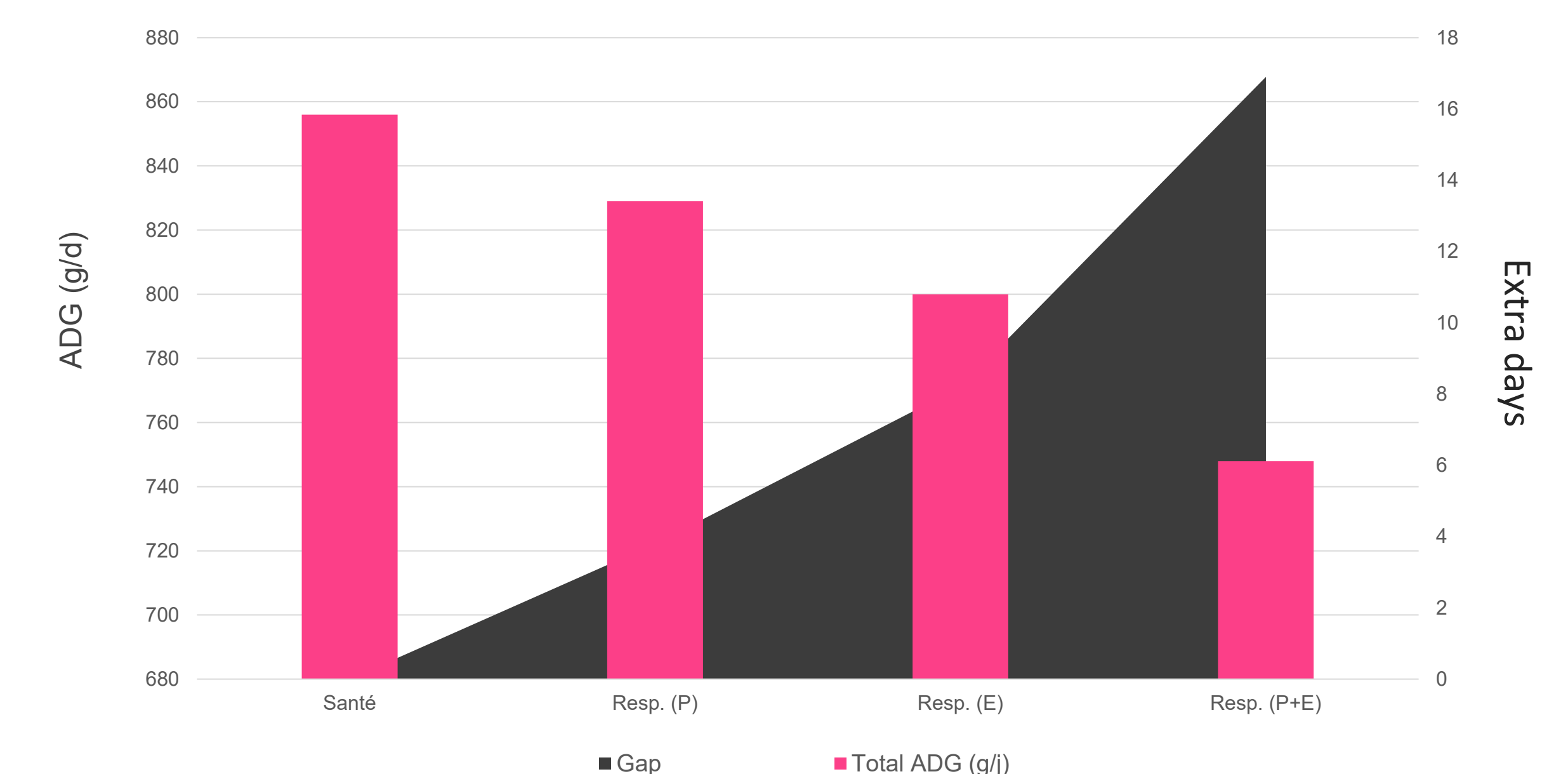


Figure 2. Average daily gain and number of additional days of breeding to lead a pig to 100 kg.

Limited impact on quality product

- IMF results measured at the end of fattening show that the presence of diseases did not have a significant impact on the level of final intramuscular fat ($P > 0.10$). All pigs in the different groups obtained a similar percentage of intramuscular fat, ranging from 2.05% for healthy pigs to 2.13% for animals that had been sick in nursery and fattening.
- The presence of PRRS and other diseases did not have a significant impact on the various quality parameters measured ($P > 0.05$).
- Only drip loss shows a significant difference ($P < 0.05$) between healthy and sick animals.

Conclusion

- The work carried out by the CDPQ has made it possible to quantify the impact of diseases, in particular PRRS, by providing a better understanding of their impact on product quality. A better knowledge of the impacts on carcass and meat quality makes it possible to raise awareness in the sector and, in the longer term, to develop means to mitigate the effects of these diseases.

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