ANIMAL WELFARE

Optimizing sow productivity and management: Impact of grouping practices on sow reproductive performance and piglet development and identification of risk factors for sow mortality

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Why is this project important?

The problem of increasing sow death losses and early sow removal is common around the globe, and a cause for concern. In general, annual replacement rates average 40-60%, which includes culling and on-farm mortality (spontaneous death or euthanasia).

A 2019 survey of 100 Canadian pig farms found average sow replacement per year of 44%, average mortality of 5.7%, and an average sow parity of 3.5. The two most common reasons for sow removal were ‘old age’ and ‘poor reproductive performance’.

Higher removal rates were associated with larger herds and group housing in gestation, among other factors. Larger herds may have removal policies to maintain herd parity distribution or be lacking time or training to identify poor performing sows and provide care. Farms with group gestation are thought to have higher removals due to leg and foot problems associated with aggression and flooring type. Higher rates in group housing may improve as producers gain experience with the system, and as genetic selection is applied to sows in groups.

Studies indicate there is some genetic basis for pelvic organ prolapse and lameness, so mortality can be reduced through genetic selection.

Research on sow mortality relies on the day-to-day records collected on farms. Across farm data systems, mortality reasons are recorded differently, and even within farms, individual workers vary in how removals are recorded.

Having reliable data on sow removals is key to understanding sow welfare, herd performance, and farm profitability. Common reasons and definitions should be adopted, and staff should receive training on definitions and the value of reliable records.

What will be the benefit of this research?

The project explored areas for the improvement of management practices related to sows. The outcomes should provide information to improve the efficiency of pork production by enhancing sow health, increasing sow productivity, and improving the vitality of piglets.

Through studying mixing practices in group housing, this research will improve the sustainability of pork production. This includes addressing consumer concerns regarding stall housing while focusing on risks and benefits related to early mixing and dynamic grouping.

Behaviour and production differences between early-mixed static and dynamic groups indicates that grouping practices can determine the success or failure of early mixing. Late mixing into static groups (control) is more reliable and poses less risk.

Early mixing in dynamic groups is a viable option provided that management strategies are used to control ongoing aggression. Important factors include adequate space allowance, feeder and drinker access, suitable flooring, and enrichment.

What did researchers do?

- Conducted a literature review and a survey of Canadian, U.S. and European production records. The focus was evaluating mortality levels and circumstances, causes, parity, stage of gestation and season related to mortality, and culling.
- Conducted an online survey on farm practices and sow mortality levels on Canadian pig farms.
- Examined benefits and limitations associated with mixing post-insemination by studying sow aggression, stress response, fertility, and productivity.
- Studied early mixing of sows in gestation, using static and dynamic grouping and comparing them to late mixing into static groups (28 days: control). In groups of 25 sows, early mixing in static groups resulted in more aggression during the first 30 minutes and lower farrowing rates. Control sows had the highest number of lesions post-mixing, indicating more persistent fighting. Early mixing into dynamic groups resulted in the least aggression at mixing and highest farrowing rate (88%).

Collaborators

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Project status

Completed in 2023.

Additional resources & information about this project

R&D Featured Articles by Swine Innovation Porc

- Group Sow Management: Can't We All Just Get Along?
  August 16, 2023

Farmscape interviews

- Researchers Compare Performance of Gestating Sows Mixed Under Static and Dynamic Mixing
  December 20, 2022
- Record Keeping Key to Determining Reasons for Death Loss of Sows and Removals From the Breeding Herd
  December 15, 2022

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