



ONTARIO PORK

Ontario Pork Research Final Report (Project # 21-07) Executive Summary

Post farrowing sow behavior and its relationship to crushing

Reporting Date: January 31, 2023

Introduction: Three Ontario swine producers developed an online forum (Swine Online) to facilitate the sharing of ideas amongst swine producers. As a result of discussions originating through the forum, producers have asked whether there is a relationship between sow behaviour after farrowing and crushing deaths and if so how to influence that in a positive manner. Producers wondered whether feeding frequency in the first days after farrowing influenced how often the sow stood and therefore how often she put her pigs at risk of being laid on. This pilot study categorized sow behaviour in the first 72-96 hours after farrowing on two commercial swine farms in Ontario.

Objectives:

1. To identify normal sow behaviour following farrowing with an emphasis on positional changes in the first days post-farrowing.
2. To compare these behaviours between two commercial swine farms.

Materials and Methods: : Two farms volunteered for the study. One producer fed sows using adlib feeding beginning on the day of farrowing (Farm B) and the other farm fed the sows manually four times per day (Farm A). Motion triggered trail cameras were set up to record sow behaviour from the day of farrowing until day 3-4 post-farrowing. Video recordings were assessed for the number of times the sow stood, sat, laid on her stomach facing the creep (NtC), laid on her stomach facing away from the creep (NafC), laid on her side facing the creep (NtC) and laid on her side facing away from the creep (NafC).

Results and Discussion: Due to pandemic restrictions, producers were tasked with mounting and operating the trail cameras. Not all camera positions allowed for a full view of the sow and farrowing crates. Reducing the number of sows whose behaviour could be accurately recorded. The first two students hired for this project both finished their summers without completing the work assigned. A third student hired in September of 2022 completed most of the analyses.

This pilot study was not designed to account for all the confounding variables that affect sow behaviour post-farrowing, many of which are farm specific. Confounding factors included genetics, flooring under the sow, sow condition on entering the farrowing crate, length of time in the crate prior to farrowing, ration formulation, and others. Little is known regarding sow lying and standing behaviour in the first 72-96 hours post-farrowing. This producer-driven investigation provided a much needed starting point to begin discussions on this little studied component of post-farrowing behaviour.

Conclusions: Sow behaviour post-farrowing varies between sows. Nevertheless, the majority of the immediate post-farrowing period is spent with the sow lying on her side. In this study sows did not prefer lying on one side or the other. Time spent by sows in a standing position, which is considered a high-risk period for suckling pigs, varied from 40 seconds (1% of the 24-hour period) to 4 minutes and 45 seconds (8% of the 24-hour period). Sows that were hand fed tended to spend more time standing possibly compared to sows that were fed ad lib. The difference may have been due to the presence of the producer entering the room with feed and creating a disturbance that did not occur with the free choice feeding in the other unit. This study could not determine whether there was an overall benefit for sow and pig health in encouraging sows to stand in the immediate post-farrowing period.



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SD cards were downloaded at the end of the observation period, disinfected, and then returned to the farm to be available for the next farrowing cycle. The goal of the pilot study was to record 20 litters on each of the initial two farms. Video recordings were assessed for the number of times the sow stood, sat, laid on her stomach facing the creep (NtC), laid on her stomach facing away from the creep (NafC), laid on her side facing the creep (NtC) and laid on her side facing away from the creep (NafC). Due to limitations related to ceiling height and other impediments to camera placement, only one sow per camera could be viewed and unfortunately some camera placements did not provide an adequate view for accurately recording sows posture changes

Results and Discussion: The original study design included recording the time when farrowing was complete, the number of pigs born alive, number of pig deaths, and the number of deaths due to crushing during the first 72 hours post farrowing. Much of this recording was to be done by a summer student. However pandemic protocols in OMAFRA as well as on the study farms precluded the student from regularly attending the farrowing sows thereby limiting the data that was recorded.

Due to pandemic restrictions, producers were tasked with mounting and operating the trail cameras. Not all camera positions allowed for a full view of the sow and farrowing crates. This decreased the number of sows whose behaviour could be accurately categorized. The first two students hired for this project both finished their summers without completing the work assigned. A third student hired in September of 2022 did nearly all of the analyses.

This pilot study was not designed to account for all the confounding variables that affect sow behaviour post-farrowing, many of which are farm specific. Confounding factors would include genetics, flooring under the sow, sow condition on

entering the farrowing crate, length of time in the crate prior to farrowing, ration formulation, and others. Little is known regarding sow lying and standing behaviour in the first 72 hours post-farrowing. This producer-driven investigation provided important insights to begin discussions on this little studied component of post-farrowing behaviour.

Figures 1 through 7 below show the proportion of each 24-hour period that was spent in the various recorded positions. Times are in relation to an “average” hour. For example, in Figure 1, 39 minutes and 28 seconds of an “average” hour or 66% of the 24-hour period was spent with the sow lying on her side with her udder towards the creep area.

Figure 1: Farm B. Sow (hand fed) 1; June 21-6 Morning following farrowing; all pigs dry. (NtC = udder towards creep area; NafC = udder away from creep area)

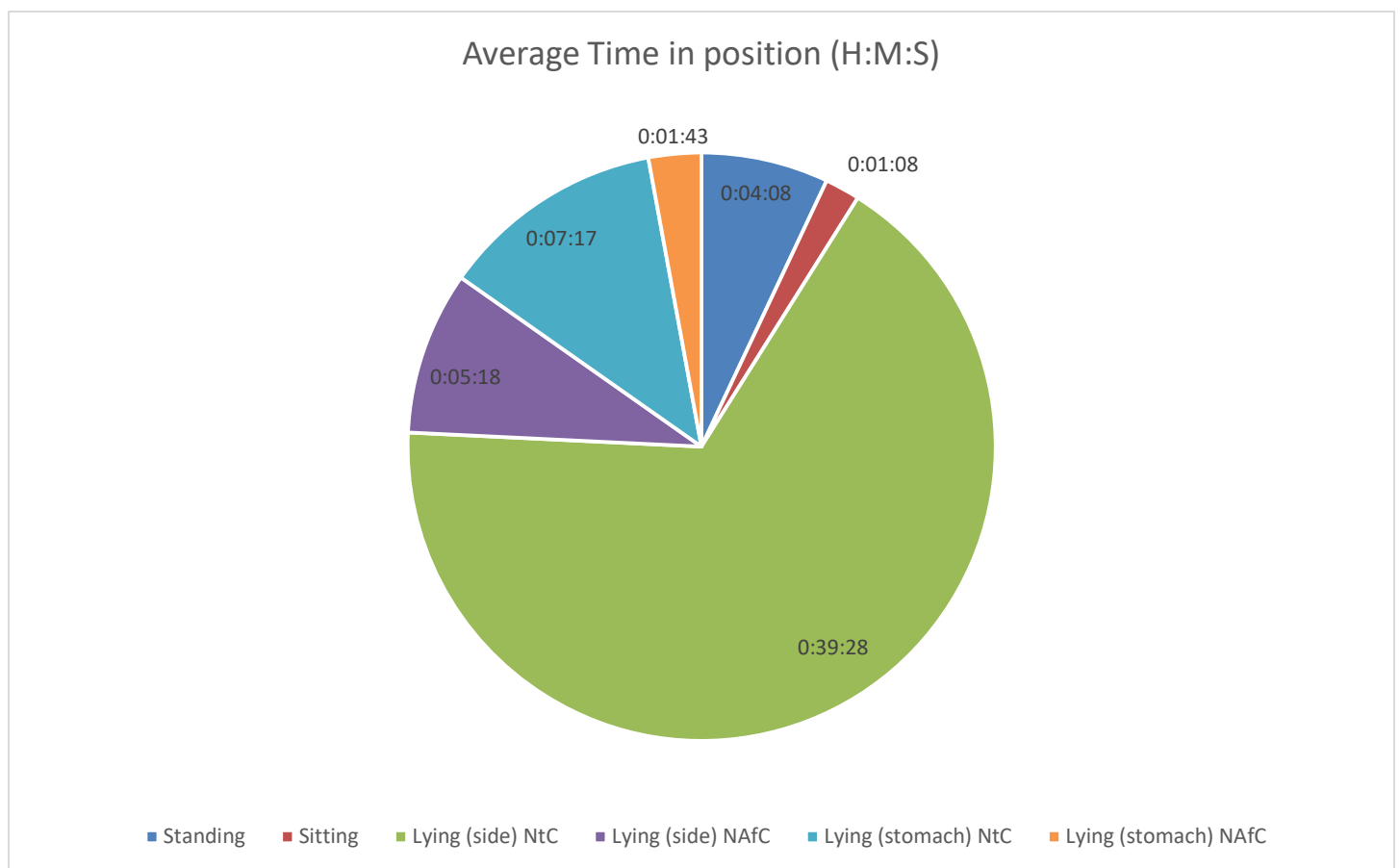


Figure 2. Farm B. Sow 2 (hand fed); June 21-6 Immediately post-farrowing.

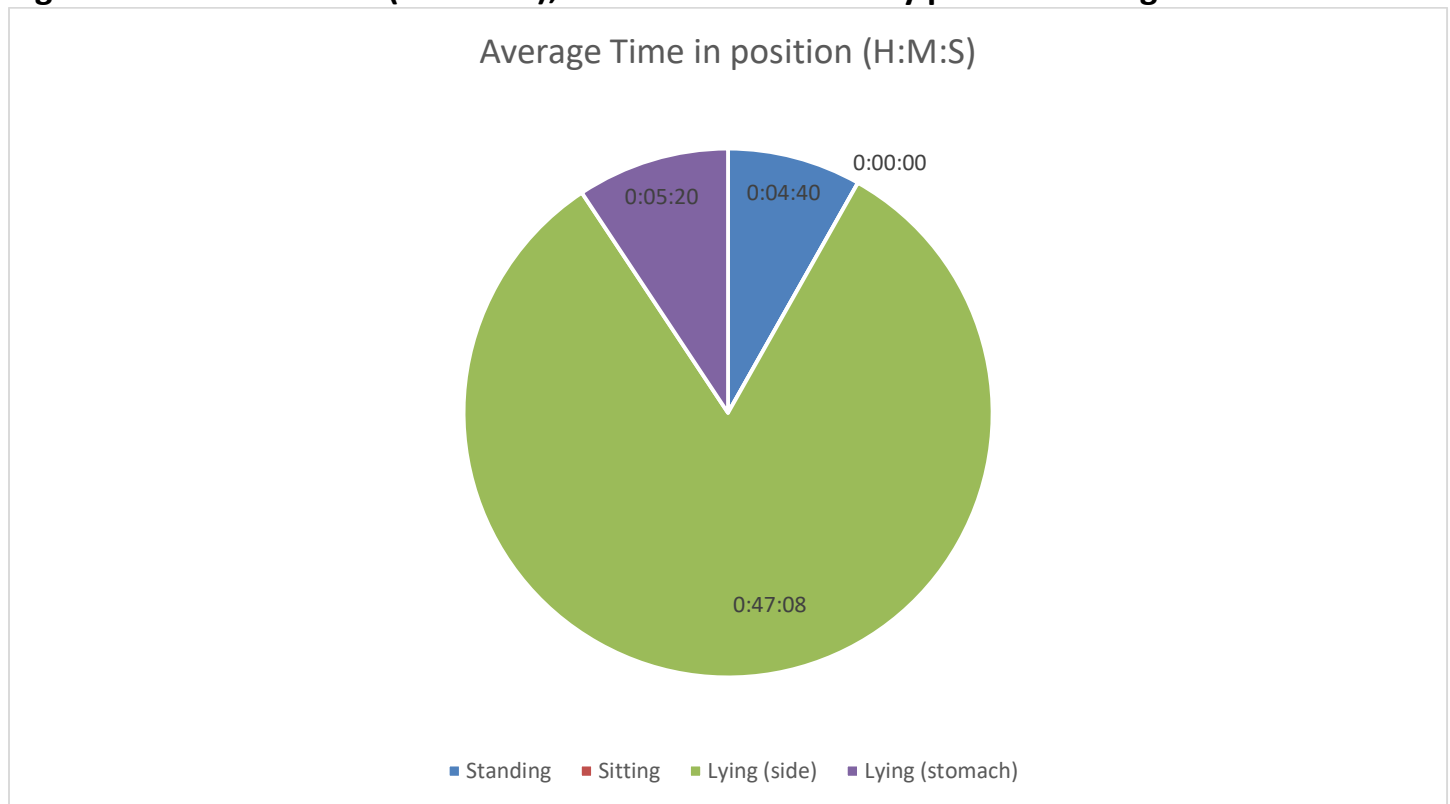


Figure 3. Farm B. Sow 3 (hand fed); 24 hours post-farrowing. (NtC = udder towards creep area; NafC = udder away from creep area)

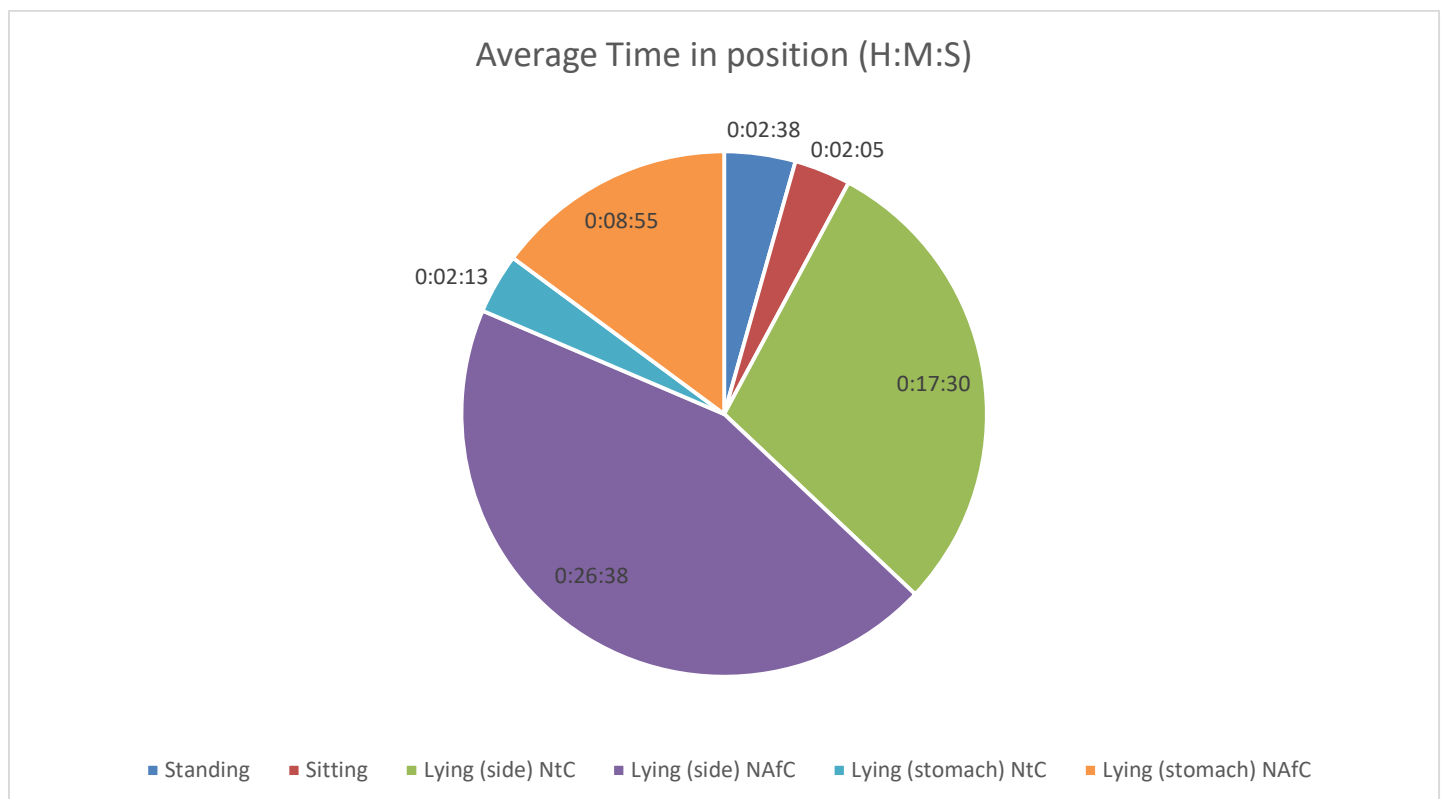


Figure 4. Farm A. Sow 1 (ad lib feeding); 30 to 60 minutes post-farrowing. (NtC = udder towards creep area; NafC = udder away from creep area)

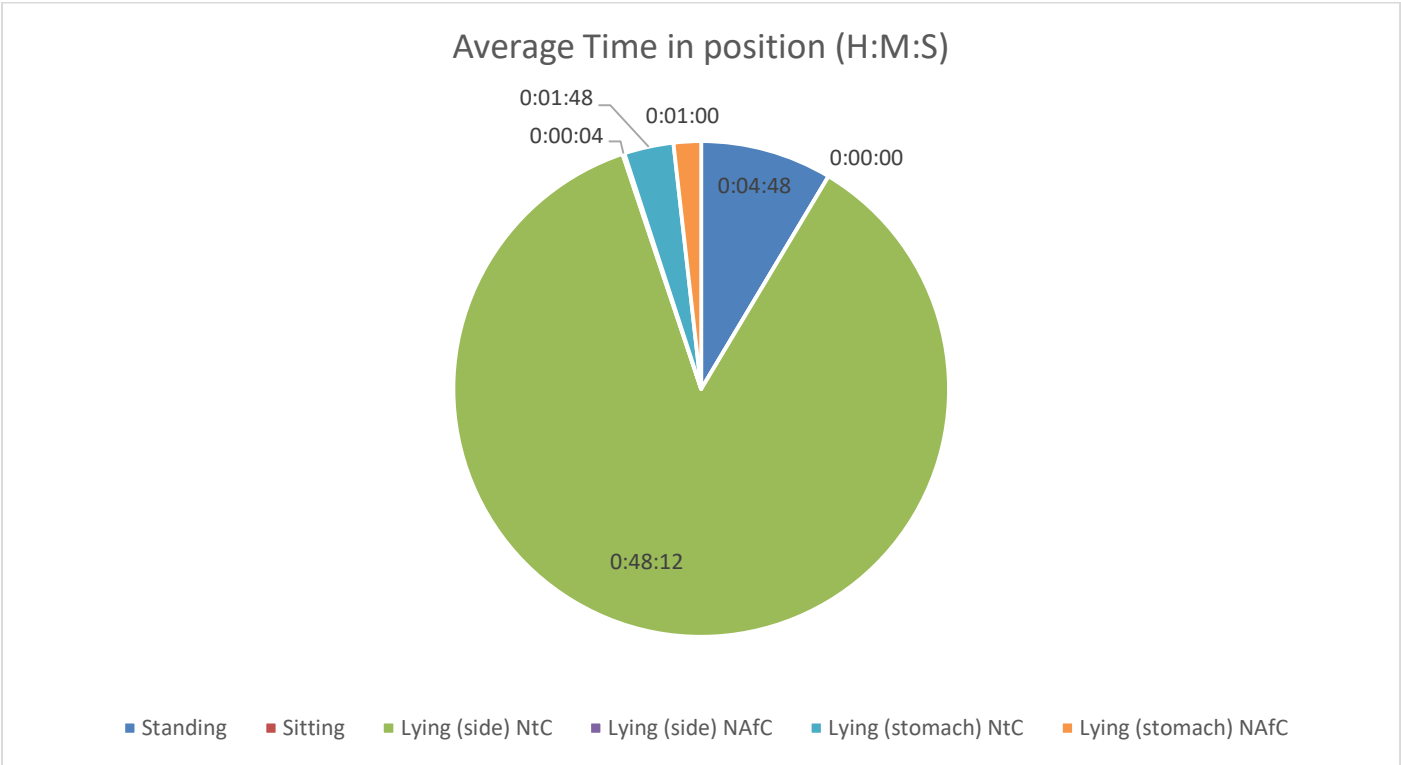


Figure 5. Farm A. Sow 1 (ad lib feeding); Three days post-farrow. (NtC = udder towards creep area; NafC = udder away from creep area)

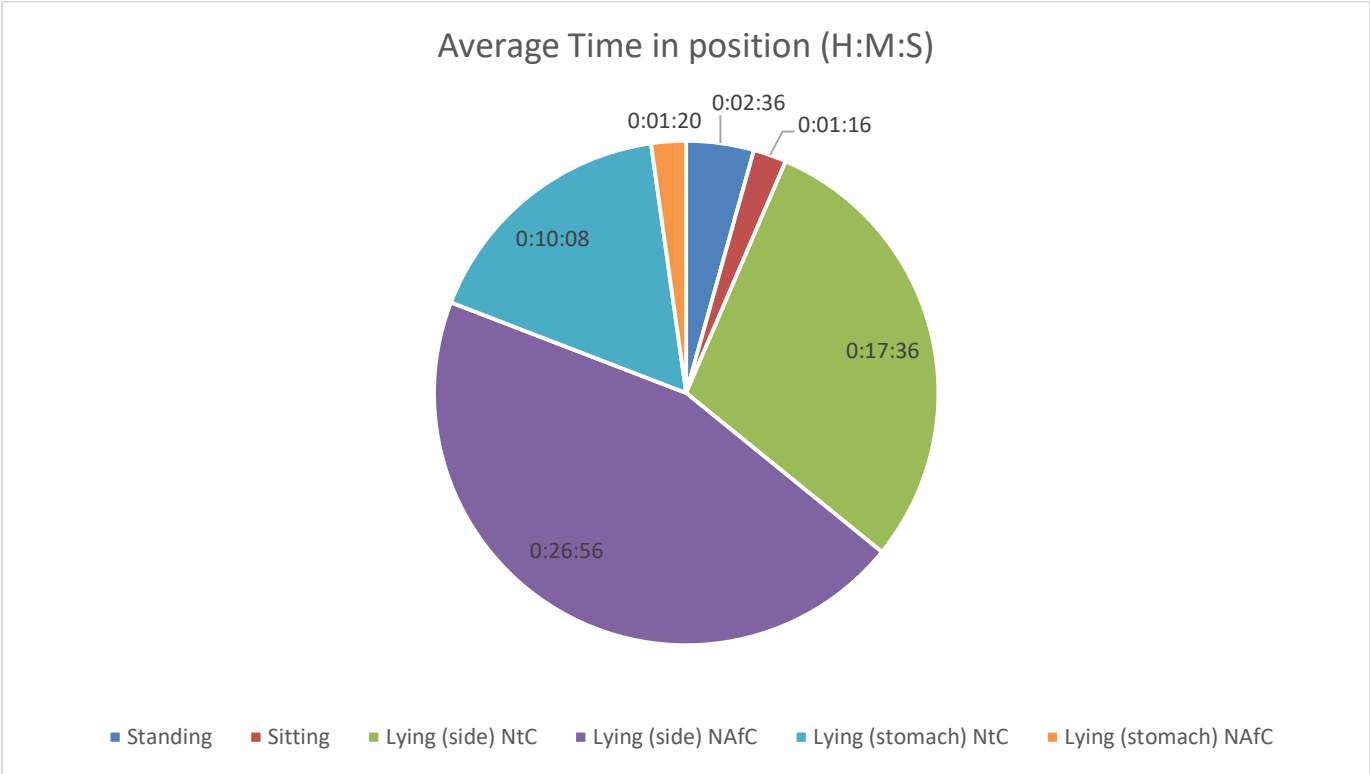


Figure 6. Farm A. Sow 2 (ad lib feeding); 30 to 60 minutes post-farrow. (NtC = udder towards creep area; NafC = udder away from creep area)

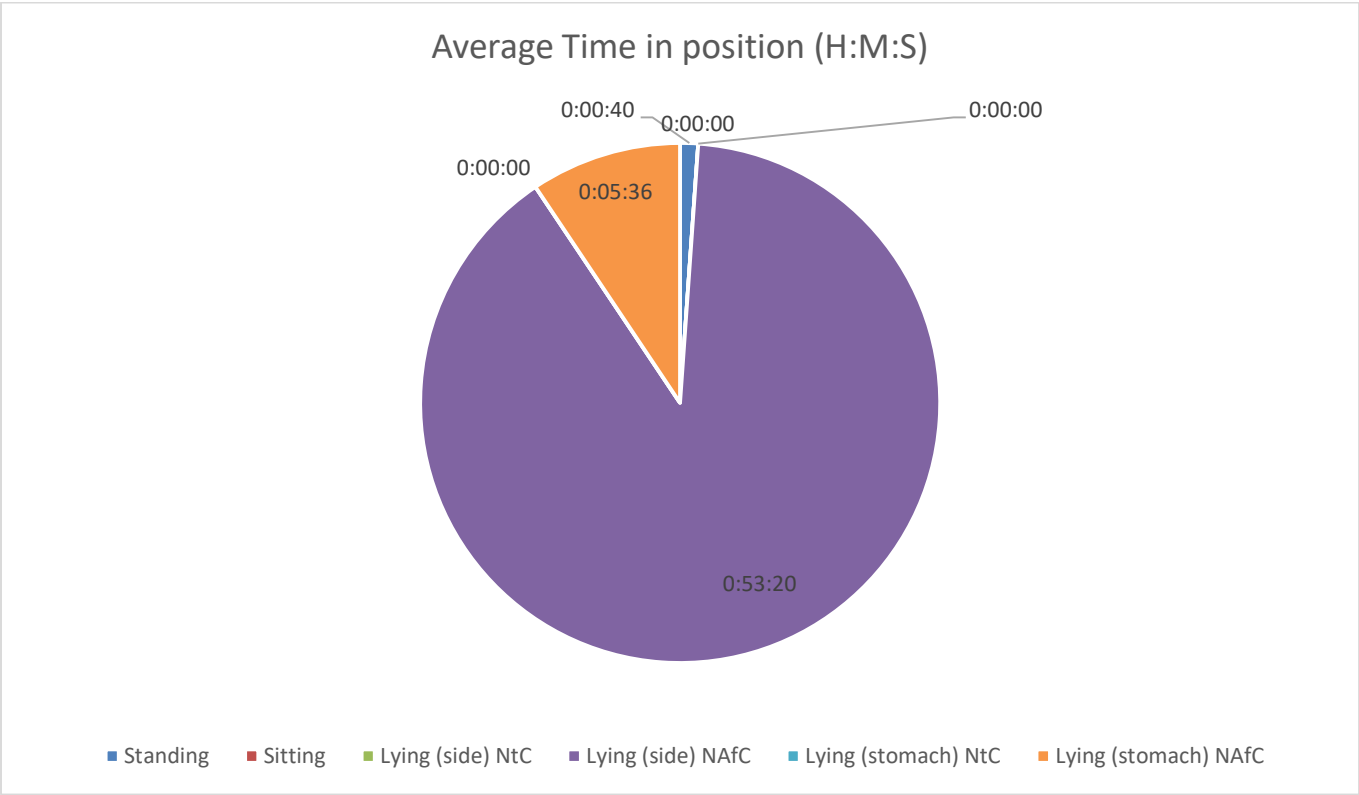
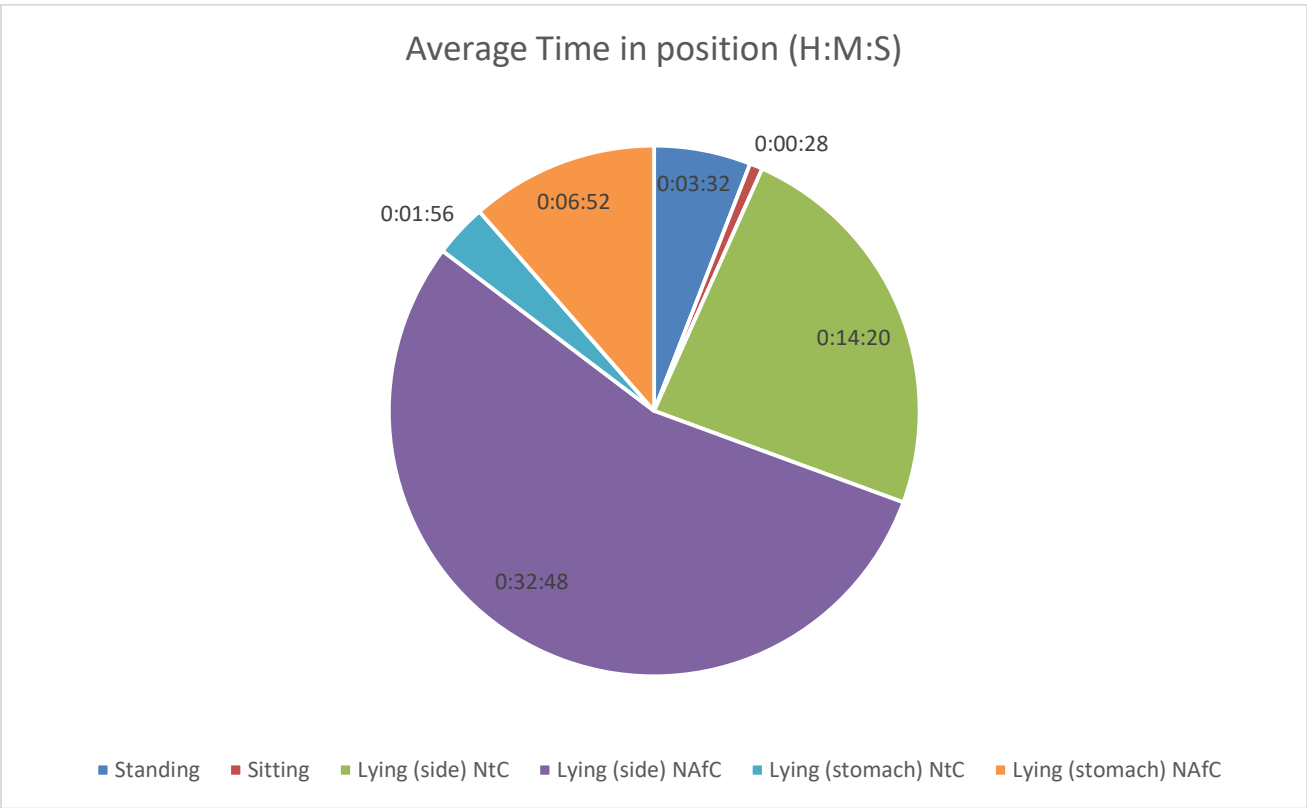


Figure 7. Farm A. Sow 2. Four days post-farrow. (NtC = udder towards creep area; NafC = udder away from creep area).



Conclusions: As expected sow behaviour post-farrowing varied between sows. Nevertheless, the vast majority of the immediate post-farrowing period in the sows studied here was spent with sows lying on their sides. In this study sows did not prefer lying on one side or the other. Time spent by sows in a standing position, which is considered a high-risk period for suckling pigs, varied from 40 seconds (1% of any 24-hour period) to 4 minutes and 45 seconds (8% of any 24-hour period). Sows that were hand fed tended to spend more time standing compared to sows that were fed ad lib. The difference may have been due to the presence of the producer on Farm B entering the farrowing room with the feed cart and creating a disturbance that did not occur under the free choice feeding system on Farm A. This study could not determine whether encouraging sows to stand in the immediate post-farrowing period such as occurred in Farm A was an overall benefit or detriment to sow and pig health and welfare.

Knowledge Transfer:

The results of this pilot study will be presented to the members of the swine online forum for their review and input. It will also be available for regional producer meetings if requested. This project demonstrated that opportunities exist for on-farm studies initiated by Ontario producers and that financial support for such trials are available through Ontario Pork. In addition, extension personnel in OMAFRA are available if requested to assist in the design and implementation of such studies.