Backfat thicknesses of 12-20 mm at farrowing maximizes litter gain in Danish sows

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Background

Sow backfat thickness (BF) at farrowing has previously been related to average daily litter gain (ADG) and litter size at weaning. Due to genetic selection the DanBred sows are now leaner, and due to a high feed intake the sows mobilize less BW during lactation than previously.

Objective

The objective of this study was to identify the optimal backfat thickness at farrowing to maximise average litter gain and litter size.

Materials and Methods

- Data originated from 10 feeding trials conducted in three different herds from 2016-2021
- A total of 3,919 DanBred hybrid sows of parity 1 to 5 were included
- Sows were standardized to either 12 or 14 piglets at day 0-3 and weaned at day 24-28 post-partum
- Sows with BF thickness at farrowing of 9-26 mm were included
- Backfat measurements were carried out using at the P2 spot using either Lean Meater (Renco Corporation, Corporation, Golden Valley, MN) or Sonograder II (Renco Corporation, Golden Valley, MN)
- Data were analysed using mixed models by inclusion of BF thickness as a continuous variable and parity as a fixed effect and trial as a random effect. Linear and quadratic responses were determined.

Results

- A quadratic pattern was identified for number of weaned piglets per litter (P<0.01)
- Number of weaned piglets per litter maximized at 12.7-12.8 piglets in 1st to 5th parity sows having 10 to 20 mm BF at farrowing (Figure 1).
- Litter ADG followed a quadratic pattern for both first (P=0.02) and 2nd to 5th parity sows (P<0.001).
- Litter ADG was maximized at 2.63 to 2.69 kg for first parity sows and 2.97 to 3.03 kg for 2nd to 5th parity sows in the range of 12 to 20 mm BF at farrowing (Figure 2).

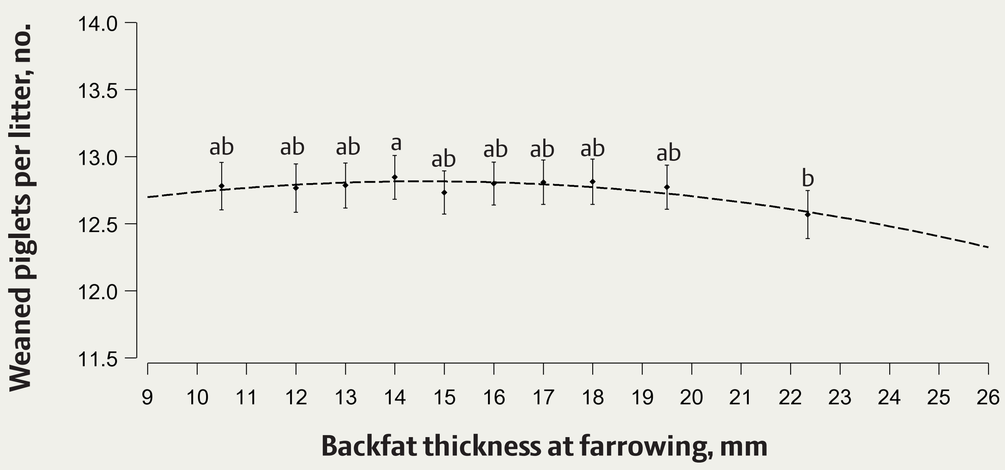

FIGURE 1. Correlation between backfat thickness at farrowing and number of weaned piglets per litter for 1st to 5th parity sows. Values are presented as LSMEANS (●) together with 95% CI, while the quadratic curve was estimated based on all litters. LSMEANS values without common superscript letters differ (P < 0.05).

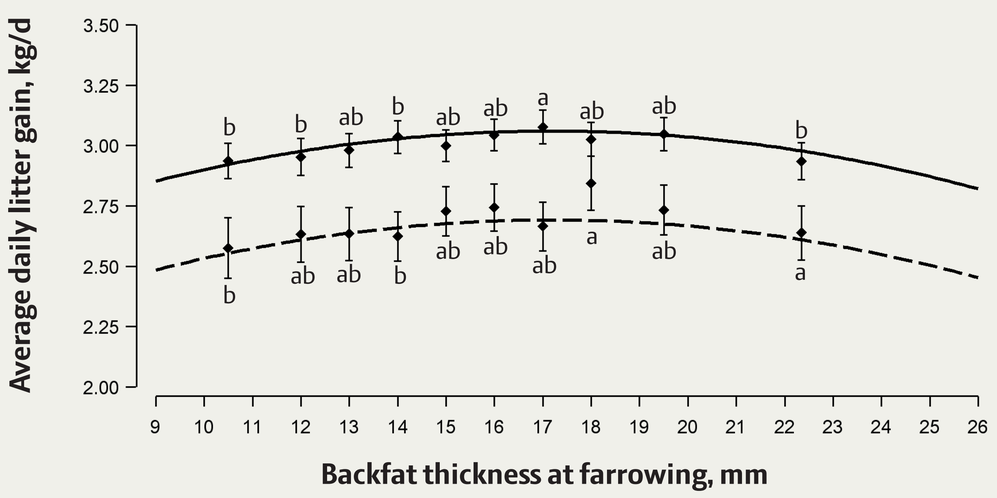

FIGURE 2. Correlation between backfat thickness at farrowing and litter ADG for first parity (– –) and 2nd to 5th parity (——) sows Values are presented as LSMEANS (●) together with 95% CI, while the quadratic curve was estimated based on all litters. LSMEANS values without common superscript letters within each parity group differ (P < 0.05).

Conclusion

- The optimal level of BF at farrowing was between 12 and 20 mm indicating that more uniform sows perform the best
- Today it is recommended that DanBred hybrid sows have a backfat thickness of 14-17 mm at farrowing to avoid sows outside the 12 to 20 mm interval.

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