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Fear Response in Gestating Sows
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Introduction
Fear is the general susceptibility to react to potentially threatening situations (Boissy, 1995). Excessive fear leads to chronic stress which can alter fundamental behaviors and reduce productivity in swine (Forkman et al., 2007). In swine, fear of human has negative impacts on reproductive performance (Hemsworth et al., 1989). The fear response is influenced by many factors including experience, genetics, sex, age and physiological state (Moberg, 1985).

Objective
The objective of this study was to determine effects of gestation stage and parity on the fear response of sows.

Materials and Methods
Sixty gestating sows (parities 1 to 9) were subjected to the human approach and the novel object fear tests in early (2 wk after breeding) and late (12 wk after breeding) gestation periods. In the human approach test, the sows were individually moved to a test arena and given 2 min to be familiarized. A person then quietly entered the arena, and stood stationary at the end of the arena for 3 min, during which sow interactions with the person were recorded: 1) latency to approach within 0.5 m of the person, 2) latency to first physical contact with the person, 3) duration spent within 0.5 m of the person, 4) number of physical interactions with the person, and 5) duration of physical interactions with the person. Following the human approach test, a novel object (an orange safety cone) was placed at the end of the arena. During the next 3 min, sow interactions with the novel object, were recorded.

A total of 176 fear tests were completed on the 60 sows. Twenty-seven (45%) of the sows were tested 4 times, 9 (15%) were tested 3 times, 17 (28%) twice, and 7 (12%) once. Approximately half (n=81) of the tests were completed on sows in early gestation, and the other half (n=95) on sows in late gestation. Likewise, half (n=87) of the tests were completed on young sows (parity 1-2), and the other half (n=85) on older sows (parity 3-9).

Statistical Analysis
The fear score for each sow was calculated using principle component analysis and factor analysis, which suggested a single-dimension fear score. The Glimmix procedure of SAS was used to test the effects of gestation stage and parity on fear response.

Results
Fear scores ranged from 0 to 4.93, with higher scores being more fearful. Sows in late gestation were more fearful than sows in early gestation (3.17 vs. 2.39, SE = 0.30; \( P < 0.01 \)). There was no difference in fear score between young (parity 1-2) and older (parity 3-9) sows.

Conclusion
These results indicate that gestation stage affected fear response in sows, which may be associated with changes in hormone profile during gestation.

References