The effect of wind shielding and pen position on the average daily weight gain and feed conversion rate of grower/finisher pigs - DTU Orbit (24/10/2019)

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Pigs are known to be particularly sensitive to heat and cold. If the temperature becomes too low, the pigs will grow less efficiently and be more susceptible to diseases such as pneumonia. If the temperature is too high, the pigs will tend to foul the pen, leading to additional risks of infection. Furthermore, unpublished data show that the temperature within a single section of grower/finisher pigs can vary considerably from pen to pen, and previous studies have shown that pigs can be significantly affected by wind, even when not directly exposed to it. To address this latter concern, some pig producers and research stations have implemented a shielding to prevent winds from blowing between separate sections of the pig housing buildings. However, according to our search of the literature, no published studies have ever investigated the effectiveness of such shielding. To determine the significance of the effects of wind shielding, linear mixed models were fitted to describe the average daily weight gain and feed conversion rate of 1271 groups (14 individuals per group) of purebred Duroc, Yorkshire and Danish Landrace boars, as a function of shielding (yes/no), insert season (winter, spring, summer, autumn), start weight and interaction effects between shielding and start weight and shielding and insert season. Such a model was fitted separately to the data collected for each breed. Shielding was found to have significant interaction effects with season (p=0.007) and start weight (p=0.0002) for Duroc pigs, but no effect could be shown for Yorkshire or Danish landrace. To determine the effect of a group's placement relative to the central corridor of a grower/finisher station, a similar model was fitted to the data for Duroc pigs, replacing shielding with distance from the corridor (1st, 2nd, 3rd or 4th pen). The effect could not be tested for Yorkshire and Danish Landrace due to lack of data on these breeds. For groups of pigs above the average start weight, a clear tendency of higher growth rates at greater distances from the central corridor was observed, with the most significant differences being between groups placed in the 1st and 4th pen (p=0.0001). A similar effect was not seen on smaller pigs. Pen placement appears to have no effect on feed conversion rate. No interaction effects between shielding and distance to the corridor could be demonstrated. Furthermore, in models including both factors, the effect of distance to corridor completely dominated over the effect of shielding, suggesting that shielding should at most be considered of secondary importance.

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Epidemiology, University of Copenhagen
Contributors: Jensen, D. B., Toft, N., Cornou, C.
Number of pages: 9
Pages: 353-361
Publication date: 2014
Peer-reviewed: Yes

Publication information
Journal: Livestock Science
Volume: 167
ISSN (Print): 1871-1413
Ratings:
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.56 SJR 0.827 SNIP 1.214
Web of Science (2014): Impact factor 1.171
Web of Science (2014): Indexed yes
Original language: English
Keywords: ADG, Boars, FCR, Pig production, Weight gain, Wind shielding
DOI:
10.1016/j.livsci.2014.06.028
Source: FindIt
Source ID: 269309461
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review