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GENETIC EFFECTS ON INFLAMMATION AND NECROSIS OF TAILS, EARS, CORONARY BANDS, SOLES AND HEELS (SINS)

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Introduction

Field observations indicate that tail lesions in pigs can occur without any interactions with other pigs and that they are often found in combination with inflammation and necrosis of the ears, coronary bands, soles and heels. Based on this findings, we have introduced swine inflammation and necrosis syndrome as a new syndrome in swine at the ECPHM congress in Dublin in 2016. Because we suppose a common endogenous trigger, the aim of the present study was to provide evidence for genetic variation of the syndrome.

Material & Methods

Twentyseven sows were inseminated with mixed semen of two boars from two distinct Pietrain-lines whose offspring were suspected to differ significantly in the outcome of SINS in the field. This approach was chosen to exclude environmental effects between boar lines, because piglets from each line were born in the same litter. The piglets were individually marked by ear tags. All aspects of SINS were individually scored in the piglets at the third and 39th day of life. Paternity was detected by microsatellite analysis from genetic material of the piglets' docked tails.

Results

The study revealed significant differences between boar lines and boars regarding inflammation and necrosis of tails, ears, coronary bands, soles and heels in suckling pigs and weaners. Genetics explained about one third of phenotypic variance of SINS. One third of genetic variance was explained by the line, two thirds by individual boars within line.

Discussion & Conclusion

Our results provide evidence for a genetic component of inflammation and necrosis syndrome in swine. Thus, endeavours to combat the syndrome should engage genetic selection, besides environmental improvement. For a sustainable improvement of SINS, future studies elaborating candidate genes and pathways that promote the syndrome are needed.

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