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EXPLORING DERMATITIS TREND IN ITALIAN HEAVY PIG PRODUCTION THROUGH ABATTOIR DATA

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BACKGROUND

Over the last few decades, the scope of meat inspection (MI) in pigs have expanded considerably, reflecting its alignment with the One Health principles (WOAH, 2024). While ensuring the safety and quality of meat remains pivotal, abattoirs are increasingly recognised as strategic observatories for syndromic surveillance. Data collected during official *ante-mortem* and *post-mortem* inspections can be used to assess animal health and welfare, as well as the management practices employed on the farm. This information can be used to provide constructive feedback to farmers and herd veterinarians (Vecerek et al., 2020). Furthermore, routine MI data can be utilised in large-scale epidemiological studies to investigate disease dynamics within animal populations (García-Díez et al., 2023; Guardone et al., 2020).

Dermatitis lesion has been identified as a useful indicator of animal welfare that can conveniently be assessed at pig slaughter (Ghidini et al., 2021; Maisano et al., 2020). Moreover, dermatitis can negatively impact production, potentially leading to the partial or even total condemnation of the carcass (Rosamilia et al., 2023). Various aetiologies should be considered, including ectoparasites (e.g., *Sarcoptes scabiei* var. *suis*), insect bites (e.g., from flies or mosquitoes), bacteria, viruses, and fungi. Official MI data could provide valuable insights into dermatitis prevalence and help identify potential gaps in its prevention and control. Nevertheless, studies on dermatitis at slaughter remain limited, particularly in heavy pig production.

This study examined the prevalence and seasonal trends of dermatitis in Italian heavy pigs by analysing official post-mortem inspection data.

MATERIALS AND METHODS

Dermatitis data (2020–2024) were extracted from routine *post-mortem* inspection records in six industrial abattoirs located in the Lombardy region (northern Italy). Differences in dermatitis prevalence were investigated between farm type (farrow-to-finish or fattening), abattoir and month of the year using a chi-squared test, with the effect size estimated by Cramér's V. Data were collected on 135,519 batches comprising 16,522,630 carcasses from 2899 Italian pig farms (12.18% farrow-to-finish and 87.82% fattening).

RESULTS

Dermatitis was reported in 12.14% of batches and in 0.52% of carcasses. No significant differences in prevalence were found between farrow-to-finish and fattening farms at batch-level ($P = 0.702$), while at carcass-level the difference was significant ($P < 0.001$) but negligible ($V = 0.003$). The median prevalence among abattoirs was significantly different at batch-level ($P < 0.001$; $V = 0.274$) and carcass-level ($P < 0.001$; $V = 0.051$). Pigs slaughtered per month varied negligibly ($P < 0.001$; $V = 0.038$), while dermatitis prevalence varied significantly among months ($P < 0.001$; $V = 0.512$), with a peak between May and July accounting for 45.41% of all cases (Figure 1).

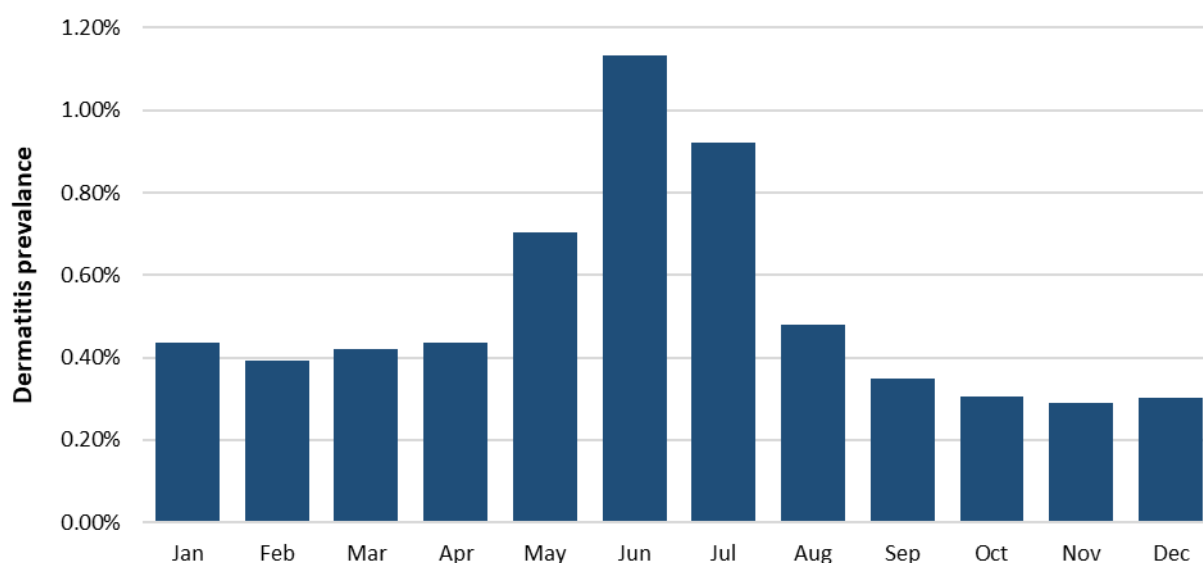


Figure 1 - Temporal trend of dermatitis prevalence: average monthly prevalence across all study years (2020–2024).

DISCUSSION and CONCLUSION

Although the prevalence of dermatitis was low (0.52%), factors relating to the inspectors (e.g. training and experience) and the abattoir (e.g. slaughter speed and data collection tools) may have introduced some bias. The lack of differences between farrow-to-finish and fattening farms suggests common risk factors, as expected since the sample consisted only of intensive indoor farms.

A distinct seasonal pattern in dermatitis cases was observed, with a peak between May and July. While sarcoptic mange is typically more prevalent in winter and spring, likely due to increased close contact between animals (Davies et al., 1996), this summer peak may be attributed to insect bite-related lesions, as suggested in a previous study (Kongsted and Sørensen, 2017), with higher temperatures and humidity as predisposing environmental factors. Nevertheless, further investigations are needed, especially considering that peaks of sarcoptic mange, a major cause of dermatitis, should be expected to occur earlier. Overall prevalence was low, but relevant variations emerged among months and abattoirs. Future studies should focus on dermatitis aetiology to better clarify seasonal variations and support disease management at farm-level.

Improving standardisation of inspection coding systems and assessors training could reduce biases, thereby further enhancing the role of abattoirs as epidemiological observatories.

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