



Suckling pig loss monitoring – Monitoring of Pre-Weaning Piglet Losses in Swiss Pig Farms: Causes, Risk Factors, and Implications for Herd Management

Marlene Schmid¹, Jenny Markov², Walter Schmid^{1,2}, Robert Graage²

¹*achilles-vetclinic.ag, CH-9512, Rossrueti*; ²*Qualiporc Cooperative, Qualiporc Health Service; CH-9050, Appenzell*

Key words

Piglet mortality, necropsy, risk factors, body mass index, herd management, diagnostic

Aim of the study

The aim of this project is to systematically identify the causes and risk factors of pre-weaning piglet mortality by conducting pathological examinations and analysing herd-level data. Based on this, the project will provide evidence-based recommendations for reducing piglet mortality. Conducting repeated examinations enables continuous optimisation of husbandry conditions and improves animal welfare.

Material and methods

The study was conducted over a three-year period (2023–2025), and included 19 Swiss pig breeding farms that participated on a voluntary basis. The project was divided into three phases: (1) recruitment and project introduction, (2) regular submission of piglet carcasses for necropsy and data collection, and (3) final evaluation and integration of findings into herd health programs.

Piglets were submitted for pathological-anatomical examination at the TMF Bazenheid. Data on litter size, age at death, treatments administered and the presumed cause of death, as reported by the farmer, were recorded for each piglet. The measurement of body weight and crown-rump length were measured to calculate body mass index (BMI).

Statistical analyses included descriptive statistics, non-parametric tests and generalized linear mixed models (GLMMs) to identify significant predictors of piglet survival time. The degree of agreement between field diagnoses and necropsy results was assessed using Cohen's Kappa coefficient.

Results and significance

The study analysed a total of 647 piglets from 19 Swiss pig farms over a period of three years. The most common cause of death presumed by farmers was crushing (59%), but pathological examination revealed that sepsis, enteritis and starving were more frequently the actual causes. This discrepancy was further highlighted by a very low agreement between field and necropsy diagnoses (Cohen's $\kappa = 0.102$), with only approximately 25% of cases matching. This finding highlights the critical need for objective, standardized post-mortem diagnostics to accurately identify the underlying causes of piglet mortality.

Statistical modelling (Generalized mixed model) identified the main necropsy diagnosis as the strongest predictor of piglet survival time. Piglets diagnosed with "crushed," "omphalitis," or "castration error" exhibited a higher survival rate, while those with "starvation" or "sepsis" tended to have reduced survival time. A low body mass index (BMI) was identified as a significant risk factor for early mortality, and a higher number of deceased littermates within a litter was also found to be associated with reduced survival. The findings of the study demonstrated that piglets with a higher BMI exhibited a significantly longer survival time. The litter size exhibited a significant relationship with models without BMI; however, this effect diminished when BMI was included in the model. This suggests that piglet condition may act as a mediator for some of the risk associated with larger litters. The administration of treatment prior to death did not have a significant impact on survival rates.

The study also found considerable variation between farms and over time, suggesting that individual management practices and environmental factors contribute substantially to piglet mortalities. These findings emphasise the importance of customised herd-level interventions and the necessity for consistent monitoring. In conclusion, pre-weaning piglet losses are multifactorial and often underestimated or misclassified by farmers. Accurate necropsy and systematic data collection are essential for effective intervention. Improving piglet body condition, optimizing the management of large litters, and promoting enhanced communication between farmers and veterinarians are crucial in order to reduce losses and enhance animal welfare in pig production. The results support the integration of regular post-mortem diagnostics and feedback into herd health programs to enable continuous improvement and sustainable reductions in piglet mortality.

Publications, posters and presentations

Saugferkelmonitoring – neu gedacht. Agridea Schweinehalterkurs kompakt, 23.10.2025, online

Erdrückte Ferkel – Update Saugferkelverlustmonitoring. 28. SVSM-Seminar, 05.09.2025 in Emmetten

Erdrückte Ferkel – erste Resultate Saugferkelverlustmonitoring. 11. Schweizer Tierärzte Tage, 25.-24.04.2024 in Basel.

Erdrückte Ferkel – erste Resultate. Informationsabend Melior, 06.03.2024 in Henau

Erdrückte Ferkel – erste Resultate. UFA-Fachausbildung, 27.02.2024 in Oberbüren

Saugferkelverlustmonitoring- erdrückt ist nicht gleich erdrückt. 17. Generalversammlung Qualiporc Genossenschaft. 14.12.2023 in Appenzell

Suckling pig loss monitoring – preliminary data, Vetsuisse Public Health Conference 2023, 06.12.2023 in Bern.

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