



POSTER

## CAMPYLOBACTER SPP. IN ANTIBIOTIC-FREE BROILER CARCASSES: WHAT IS THE IMPACT OF CLIMATE?

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**Aim.** Campylobacteriosis cases increased in Europe in the last years re-focussing the attention on broiler production, historically considered one of the most relevant reservoirs with a lens on climate change as a potential driving-factor. Antibiotic-free broiler farms are rising in Italy along with a consistent reduction of more than 90% of the antibiotic use in the last decade. However, few data are available on the impact of climate on the occurrence of Campylobacter in this specific type of farms characterised by high hygiene and biosecurity standards. In this study, data on climate indicators 3 weeks prior to slaughter were collected along with enumeration data on Campylobacter spp., Enterobacteriaceae and total colony count in antibiotic-free broiler carcasses in Winter and Spring in order to evaluate potential correlations.

**Material and Methods.** Between February and June 2026, five pooled neck-skin samples were collected per each of five farms (A-E) per each season (winter and spring). Each pooled sample was obtained from 15 post-chill broiler carcasses at the slaughterhouse, for a total of 150 carcasses: 75 analysed in winter and 75 in spring. Microbiological analyses were performed in accordance with ISO 10272-2:2017 for Campylobacter spp. enumeration, ISO 21528-2:2017 for Enterobacteriaceae enumeration, and ISO 4833-2:2013 for total colony count. Daily data on relative humidity, temperature and precipitations were collected from three weeks prior to the day of slaughter at Meteostat (<https://meteostat.net/>)

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**Results.** Campylobacter counts exceeded the process hygiene criterion of 1000 CFU/g in 15 winter and 12 spring pooled samples from all tested farms. Total bacterial counts ranged from 4.9 to 6.5 log<sub>10</sub> CFU/g with a significant increase in Spring compared to Winter in Farm D. Farm-related differences were observed for Enterobacteriaceae, with mean values ranging from 3.2 to 5.5 log<sub>10</sub> CFU/g. Among the tested farms, in Winter Farm A and C exhibited the lowest values of relative humidity (%) and precipitation (m) calculated as mean and sum of daily data of the three weeks prior to slaughter. In Spring, the lowest climate values were recorded in Farm C. Interestingly, in both seasons Farm C exhibited the lowest mean Campylobacter load value on broiler carcasses.

**Conclusions.** Campylobacter spp. enumeration exceeded 1000 CFU/g in some antibiotic-free carcasses in all tested farms both in winter and spring. Differences among farms were observed for total bacterial counts and Enterobacteriaceae as well as climate data suggesting that environmental and farm-related factors may influence microbial contamination levels. These findings highlight the importance of continuous monitoring on Campylobacter as well as environmental related data such as relative humidity and precipitation three weeks prior to slaughter. Future work will be needed to compare Campylobacter occurrence in conventional and antibiotic-free Italian broiler productions.