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DAILY PATTERN OF SOUND LEVEL IN A CAGED HENS FACILITY AS AN INDICATOR OF DAILY ACTIVITY VARIATION

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ABSTRACT The daily variation of animal activity can be used as an indicator of the daily pattern of carbon dioxide emissions. This pattern in CO₂ emissions is crucial to develop accurate carbon dioxide balances to estimate ventilation fluxes from animal facilities. Determining the activity index in commercial farms is a challenge, mainly for caged hen facilities where the number of animals and their distribution in the building make the use of video records or PID systems difficult. The sound level inside a commercial hen farm has two components: part of the sound is linked to the equipment installed in the building (fans, feeding system, manure belts, etc.), the other part is produced by the animals and can be linked to their activity level. The aim of this work is to study the daily pattern of the sound level in a hens housing and to relate it to indirect indicators of animal activity. A sound level meter was installed inside a building with a capacity of 142 000 laying hens during a week. The sound level was registered continuously each 10 minutes. The lighting program of the farm was automatically controlled where the light period of 16 hours went from 5 a.m. to 9 p.m. A clear daily pattern was identified observing higher sound levels during the morning (maximum level of 78 dB at 9 a.m.). Those sound levels decreased constantly (until 73 dB) during the late morning and afternoon. During the dark period an almost constant low sound level (68 dB) was observed. This pattern has similarities with the daily activity patterns for laying hens identified in previous research. Despite the high interest of the results obtained further research is needed in this topic, mainly comparing these sound levels with carbon dioxide emission measurements and validation with other activity index determination methods.

Keywords: Hens, Sound level, Activity.