





UNIVERSITÀ DEGLI ST'UDI DI MILANO DIPARTIMENTO DI SCIENZE AGRARIE E AMBIENTALI PRODUZIONE, TERRITORIO, AGROENERGIA

Simulation of natural lighting contribution to the illuminance of the milker's visual task area M. Zucali, E. Ighina, A. Calcante, A. Costa², R. Oberti, A. Sandrucci, A. Tamburini, L. Bava, F.M. Tangorra



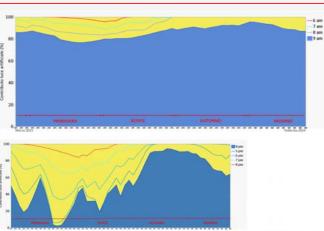
The contribution of natural light to the illuminance of the milker's visual task areas in both parlours was simulated using **DIALux EVO 12.1 lighting design**

software (DIAL GmbH, Lüdenscheid, Germany).



Milking parlours are often poorly lit compared to other farm areas and this can affect the efficiency and effectiveness of the milking routine. Various researchers (Rajaniemi et al., 2015; Clarke and House, 2016) recommend parlour lighting levels of 200-250 lx. The American Society of Agricultural and Biological Engineers (ASABE) advises 500 lx!!!

The aim of the study was to simulate the contribution of natural light to the illuminance of the milker's visual task areas in two milking parlours within the MungiLUX project funded by Regione Lombardia (FEASR - Rural Development Programme 2014-2020).



Illuminance (lx) of the milker's visual horizontal task areas by natural light ranged from 2 to 136 lx.

Changing the start of milking by two hours guarantees on average a 60% contribution of natural light to the illuminance of the milker's visual task areas over the year.