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Dairy production systems (DPS) are an essential part of European agriculture. Nevertheless, these systems face many challenges across the three pillars (3P) of sustainability (environment, economy, society). Therefore, it is essential that holistic concepts are developed to ensure sustainability of the sector, and to assist farmers and stakeholders in making knowledge-based decisions. The MilKey project aims to develop flexible concepts for sustainable milk production in key European Areas, allowing to identify synergies and trade-offs of measures dealing with single sustainability parameters, and to suggest targeted solutions for the different DPS in Europe. For MilKey, monitoring emissions is presented as crucial step for the design and implementation of mitigation measures to enhance the environmental sustainability of the sector. To this end, an online tool for monitoring indoor barn climate, animal stress and emission levels of air pollutants (OTICE) has been developed. The OTICE gives real time information on the temporal and spatial distribution of indoor air quality parameters, the level of animal activity and the emission levels of air pollutants such as ammonia (NH₃). Furthermore, MilKey develops and tests integrated sustainability assessment approaches that include GHG and NH₃ emission mitigation options for key DPS across Europe. As the main output of the project, the MilKey platform will provide relevant, accessible, and science-based information to stakeholders regarding emission mitigation and sustainability improvement. In this way, MilKey will assist stakeholders when making knowledge-based decision towards the design of more sustainable DPS.