

Abstract for Paper to be presented at WHFF 2023, Puy du Fou, France

November 21/22, 2023

Session 2: The Holstein Cow - all set for tomorrow: feed efficiency, sustainability, low methane emissions

Title: Phenotyping for feed efficiency

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The global demand for dairy products is increasing continuously, however, the dairy industry is concurrently facing increasing criticism for potential issues related to human and animal health, environmental impacts, sustainability, and overall social acceptability. The Resilient Dairy Genome Project (RDGP) is one of a number of large-scale international collaborations between research and industry partners with the goal of integrating genomic approaches to enhance dairy cattle resilience. In this case, resilience is defined as the capacity of an animal to adapt rapidly to changing environmental conditions, without compromising its productivity, health or fertility, while becoming more resource-efficient and reducing its environmental burden. The collection and analysis of phenotypes in the key areas of 'closer-to-biology' fertility (e.g., estrous expression and embryo survival), enhanced disease resistance (e.g., fertility disorders, Johne's disease, leukosis, and calf health), and environmental efficiency (e.g., feed efficiency and methane emissions) contribute to this definition of resilience. The project relies heavily on international collaboration, in particular in the area of environmental efficiency. We describe a strategy for incorporating data from multiple national and international partners for use in dairy cow genomic evaluation programmes.