

Decision-Making Strategies on Smart Dairy Farms: A Review

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Abstract : Farm management and operations will drastically change due to access to real-time data, real-time forecasting, and tracking of physical items in combination with Internet of Things developments to further automate farm operations. Dairy farms have embraced technological innovations and procured vast amounts of permanent data streams during the past decade; however, the integration of this information to improve the whole farm-based management and decision-making does not exist. It is now imperative to develop a system that can collect, integrate, manage, and analyse on-farm and off-farm data in real-time for practical and relevant environmental and economic actions. The developed systems, based on machine learning and artificial intelligence, need to be connected for useful output, a better understanding of the whole farming issue, and environmental impact. Evolutionary computing can be very effective in finding the optimal combination of sets of some objects and, finally, in strategy determination. The system of the future should be able to manage the dairy farm as well as an experienced dairy farm manager with a team of the best agricultural advisors. All these changes should bring resilience and sustainability to dairy farming as well as improving and maintaining good animal welfare and the quality of dairy products. This review aims to provide an insight into the state-of-the-art of big data applications and evolutionary computing in relation to smart dairy farming and identify the most important research and development challenges to be addressed in the future. Smart dairy farming influences every area of management, and its uptake has become a continuing trend.

Keywords : big data, evolutionary computing, cloud, precision technologies

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