

## ENHANCING DAIRY FARM MANAGEMENT THROUGH PRECISION LIVESTOCK FARMING AND ARTIFICIAL INTELLIGENCE

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***Abstract.** The dairy industry faces growing challenges in optimizing productivity, animal welfare, and sustainability. Precision Livestock Farming (PLF) and Artificial Intelligence (AI) are emerging technologies that offer innovative solutions to enhance management practices on dairy farms. This paper explores the integration of PLF and AI in 5 dairy cattle farms from N-E of Romania, covering key areas such as health monitoring, reproductive management, nutrition optimization, and herd performance tracking.*

**Keywords:** Dairy farm management, Precision Livestock Farming, Farm productivity.

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### 1. Introduction

As global demand for dairy products rises, farms are pressured to increase milk production [8]. Growing consumer demand for organic, antibiotic-free, and ethically produced milk puts pressure on farmers to meet these expectations while remaining profitable [1]. Achieving this requires optimizing feed efficiency, cow health, and breeding programs without overburdening animals or the environment.

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