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Precision Agriculture Trends in 2025 and Pig Farming

Florin Daniel BOGOȘEL¹, Ionuț Mircea PETROMAN², Loredana VĂDUVA^{1*},
Cornelia PETROMAN¹

¹ Banat's University of Life Sciences "King Mihai I", Faculty of Management and Rural Tourism, Timisoara

² Banat's University of Life Sciences "King Mihai I", Faculty of Food Engineering, Timisoara

*Corresponding author's e-mail: loredana_heber@yahoo.com

Abstract: The year 2025 will bring about eight precision agriculture trends: Agricultural Robotics, Artificial Intelligence, Big Data & Analytics, Drones, Emission Reduction Technology, Internet of Things, Satellite Technology, and Variable Rate Technology. The authors have investigated the contents of these trends and identified those precision agriculture trends that could have a positive impact on pig farming provided strategic decision-making is improved due to innovation intelligence supported by data-driven research. This approach will allow farmers to meet the demands using cost-effective and efficient methods and gather real-time data on crop fields, thereby improving product quality and overall farm management.

• Introduction

Here are some key trends in precision agriculture for 2025 that are driving the future of agriculture towards greater efficiency, sustainability, and productivity:

- Agricultural robotics: Deployment of robots for tasks like planting, weeding, and harvesting.
- Artificial Intelligence: AI-driven predictive analytics for crop management and decision-making.
- Big Data & Analytics: Leveraging big data to optimize farming practices and improve yields.
- Drones: Advanced drone technology for crop monitoring, spraying, and field analysis.
- Emission reduction technology: Innovations aimed at reducing the environmental impact of farming.
- Internet of Things: Increased use of IoT devices and sensors to monitor and manage farm conditions.
- Satellite technology: Enhanced satellite imagery and GPS tracking for real-time data collection and field mapping.
- Variable rate technology: Precision application of inputs like fertilizers and pesticides based on real-time data.

• Material and method

The material used in this paper consists in a corpus of articles (published between 2017 and 2023) on precision agriculture trends in 2025 and pig farming. The research method used is corpus analysis.

• Results and discussions

A comparison between the trends in precision agriculture for 2025 and the trends in precision pig farming for 2025 shows that:

- They share only three trends: Artificial Intelligence, Big Data & Analytics, and Internet of Things;
- Environmental monitoring, Health monitoring systems, Precision feeding, Robotics, and Sustainability practices are trends specific to the trends in precision pig farming for 2025;
- Artificial Intelligence, Big Data & Analytics, and Precision feeding can make pig farming more efficient, sustainable, and humane;
- Environmental monitoring can help create a healthier environment for pigs, improve their welfare, and enhance overall farm efficiency.
- Health monitoring systems can help farmers catch health issues early, reduce the need for antibiotics, and improve overall pig welfare.
- Internet of Things can collectively enhance the efficiency, sustainability, and welfare of pig farming.
- Robotics can help improve animal welfare, reduce labour costs, and increase overall farm productivity.
- Sustainability practices can help create a more sustainable and efficient pig farming system.

• Conclusions

Precision pig farming trends in 2025 are set to revolutionize the industry by integrating advanced technologies to enhance efficiency, sustainability, and animal welfare. Key trends include the use of IoT devices, AI-driven analytics, robotics, and big data to optimize every aspect of pig farming, from feeding and health monitoring to environmental control and resource management. These innovations promise to make pig farming more productive, cost-effective, and environmentally friendly, ensuring a sustainable future for the industry.