

# Exploring the Role of Artificial Intelligence in Precision Agriculture: Challenges and Opportunities

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## **Abstract**

This paper examines the potential of artificial intelligence (AI) in transforming precision agriculture by enhancing the efficiency of farming practices. We explore the various AI techniques, including machine learning, computer vision, and data analytics, which are being applied to improve crop yield predictions, soil health management, and pest control. The challenges of implementing AI solutions, such as data privacy concerns, the digital divide, and high implementation costs, are also discussed. The paper concludes with a discussion of future opportunities for AI in agriculture, highlighting the need for collaborative efforts between researchers, farmers, and policymakers.

## **References**