Ai-Powered Smart Farming Advisory System

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Abstract: *Excessive use of pesticides and fertilizers in agriculture poses a significant threat to environmental sustainability, soil health, and farm profitability. Traditional methods of input management are often inefficient and lack precision. This paper proposes a data-driven solution through a mobile application that integrates Soil Health Card data, real- time weather information, and the Leaf Color Analysis method to provide farmers with location-specific recommendations for optimizing pesticide and fertilizer use. The system leverages advanced analytics to reduce chemical dependency, enhance crop health, and promote sustainable farming practices. Our results demonstrate the app's potential to improve productivity, minimize environmental impact, and support data- driven decision-making in agriculture.*

Keywords: Pesticides and fertilizers optimization, soil health, weather integration, Leaf Color Analysis, sustainable farming, precision agriculture