Variable Rate Spraying Technology- a controlled, practical method towards mitigating climate and environmental risks

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A B S T R A C T

Precision agriculture, put simply, is farming that uses information technology, satellite positioning (GNSS) data, remote sensing techniques, and proximal data gathering for the crops. The goal is to optimise returns agricultural yields and to minimize potential environmental impact and wastages. It has the following benefits; (i) Higher yields with greater efficiency –more production with less water and lesser agricultural area using the variable-rate application (VRA) technology to increase soil fertility and yields by reducing and managing nutritional imbalances, crop stress, and pest infestations. Precision farming, thus, could aid efficiently in feeding a growing population and optimizing land use, (ii) Greater food security – Higher crop yields means more production of food and thus increased food security and safety using product traceability, resulting in greater savings and higher profits for the farmers, (iii) Environmental benefits – Controlled use of water in a limited agricultural area, brings down the use of natural resources are utilized efficiently which means less deforestation. Also, reduction in the use of fertilizers and other pesticides facilitates a decrease in greenhouse gas emissions and less contamination of soil and water bodies, (iv) Agricultural Health – Frequent monitoring of crops through advanced technology, i.e. remote sensing techniques, drones, etc. helps in early identification of diseases, thus letting the farmer take timely corrective and preventive measures. Microbes are being developed to help crops like corn, wheat, and rice extract nitrogen from the air and use them on their own. This will not only reduce the need for man-made fertilizer but will significantly bring down the carbon emissions from agriculture. Enriching the crops will become far more efficient than today.

Key words: Variable Rate Spraying Technology, environmental risks; climate change; adaptation

Profile

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