International Scholars Journals

Global Journal of Plant and Soil Science, ISSN 2756-3626 Vol. 6 (2), pp. 001-002, June, 2022.
Available online at www.internationalscholarsjournals.com © International Scholars Journals

Commentary

Precision farming and their benefits in agriculture

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Received: 13-May-2022, Manuscript No. AAB-22-64462; Editor assigned: 16-May-2022, PreQC No. AAB-22-64462 (PQ); Reviewed: 30-May-2022, QC No AAB-22-64462; Revised: 06-Jun-2022, Manuscript No. AAB-22-64462 (R); Published: 13-Jun-2022

ABOUT THE STUDY

Precision farming improves quality of crops and economics by integrating modern technologies such as aerial photographs and soil sampling. Furthermore, it enhances the efficiency of traditional resources. As a result, this agricultural management system contributes to the development of sustainable agriculture by allowing for the resolution of both economic and ecological issues that are becoming prevalent worldwide. Precision farming management systems are always evolving. They enable farmers to manage a broad variety of issues. At the same time, precision agriculture comprises a wide range of components that growers must acquire in addition to increasing their yield.

Importance of precision farming

It significantly enhances crop efficiency and reduces expenditure while increasing output. The issue is significant because precision agriculture technology appear to be expensive at first glance. In the long term, however, the savings are substantially bigger than with traditional agricultural practices. As a result, growers can determine the minimum fertilizer amount and determine the most effective fertilizer types for a particular region. Moreover, precision farming technologies are important since they improve the long-term planning of agricultural operations by altering the clear strategy during unforeseen circumstances. Improving soil management maintains its integrity, allowing for a reliable agricultural production. As a result, precision farming in crop production is essential to addressing the global food insecurity. A precision agriculture technology allows farmers to maximize all processes from afar. Large fields and a combination of tiny regions can be managed even by agricultural production. Fertility and nutrient availability are impacted by micro-differences in soil physical, chemical, and biochemical properties. While slope can impact soil water retention, biological stress can vary. Weeds are propagated by rhizome or pollen, thus they tend to show up in the same place. In soil pathogens, the same phenomenon can be observed. As a function, crop growing conditions will not be homogeneous over a growing environment.

Benefits

• Productivity can be increased by the ability to work in low visibility field conditions such as rain, dust, fog, and darkness.

• Precision yield data enables for future content crop establishment.

• Precise field management decreases the quantity of redundant applications and regions neglected, allowing for optimum ground coverage in the minimum period of time.

• Precision soil sampling, data collecting, and analysis allow for specific modifications in agrochemicals and planting density to suit specific fields.

• For farming organizations that can maximise their labour and resources, eliminate waste, and increase land productivity. Farmers and contractors benefit from lower hourly expenses as procedures are managed more quickly and effectively. Finally, they enhance productivity while minimizing human resource exhaustion.

• Precision farming and virtual applications benefit all stakeholders in agricultural operations in a variety of forms, but primarily by providing more metrics for agricultural monitoring, improved ability to make informed and efficient decisions, creation of highly accessible farm records, improved crop and investment protection, organised irrigation management, and remarkable land commitment and environmentally sustainable.

• Optimum genetic potential manifestation of the crop production.

• Reduces the environmental impact of the land, water, and air by reducing the consumption of synthetic fertilizers and pesticides.

• Reducing costs of supplies and resources such as water, seeds, and fuel.

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• Reduces the dependence on resources and irrigation, making agriculture more sustainable.

• Improves resource consumption while enhancing yield amounts and quality, increasing Profitability.

• Reduces greenhouse gas emissions in agricultural production.