



Mains Practice Question

Q. What do you understand by precision irrigation? Discuss the advantages of precision irrigation in India. (250 words)

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Approach

- Briefly define precision irrigation.
- Define precision agriculture and establish a link between precision irrigation and precision agriculture.
- List advantages of precision agriculture in environmentally sensitive areas in India
- Conclude suitably.

Introduction

Precision Irrigation is one innovative agricultural technique that uses water wisely and helps farmers achieve higher levels of crop yield in a minimal amount of water.

- It involves the accurate assessment of plant water requirements and precise application of the required volume at the required time.
- It requires the use of new technologies, such as global positioning (GPS), sensors, satellites or aerial images, and information management tools (GIS) to assess and understand variations.
- Precision Irrigation is one of the components of Precision Agriculture.

Body

Precision agriculture (PA) is an approach to farm management that uses information technology (IT) to ensure that the crops and soil receive exactly what they need for optimum health and productivity. The goal of PA is to ensure profitability, sustainability and protection of the environment.

Advantages of precision agriculture in environmentally sensitive areas in India

- Majority of net sown areas are rain-fed (It depends on rainfall for irrigation). Also, the nature of Indian monsoon is seasonal and is subject to climate change.
 - This calls for the application of precision agriculture.
- In India, the agriculture sector is the largest consumer of water. Thus, the application of precision agriculture can address the water scarcity in India.
 - Poor irrigation management (over-extraction of groundwater) has an immense impact on water resource availability.
- Green Revolution involves the use of fertilizers and pesticides on a large scale. However, these chemicals have leached into the soils and led to aquifers contamination.
 - Therefore, techniques like Fertigation (fertilizer is incorporated within the irrigation water by the drip system) can help in increasing productivity and at the same time ensuring

sustainability.

- Also, the Soil health card launched by Indian government is a step in the right direction in this regard.
- Indian agriculture is prone to a lot of natural disasters like floods and droughts.
 - Use of weather forecasting, can help farmers to prepare for these disasters and take measures like taking crop insurance to minimize losses to farmers.

Conclusion

Water is one of the scarcest resources in India, given the ever-increasing scarcity of water, it is high time that India must adopt innovative agriculture practices like precision agriculture, climate smart agriculture etc.

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