



Smart farming

Description

What is Smart farming:

- Smart farming is managing farms by using advanced technologies such as drones, sensors, the Internet of Things etc. This is developing into a third green revolution.

Challenges for Indian Agriculture:

- Soil health in India is becoming incapable of supporting farmers. Soil health is being greatly harmed by wind and water erosion, deforestation, urbanization, and the removal of native vegetation. The Soil Health Survey conducted in 2019-20 by the central government found that 55 per cent of the country's soil is deficient in basic nutrients.
- India's average farm size has been steadily shrinking, which has hurt labour productivity and restricted economies of scale. As per the latest information available from the Agriculture Census, the average size of operational holdings has decreased from 1.41 hectares in 1995-96 to 1.08 hectares in 2015-16. Considering this trend and that the population will only increase in the future, it is going to put a lot of pressure on the country to maintain its food security.
- Many of its farms still rely on the monsoon for irrigation, which restricts their ability to boost crop production. Too much rainfall or too little, or a volatile monsoon pattern, can damage crops.
- Small and marginal farmers cannot get a convenient line of credit. Small and marginal farmers are more dependent than large farmers on informal sources of credit, which puts them under unnecessary stress and increases the likelihood that they won't be able to repay the loan if their crops are damaged.
- Small and marginal farmers tend to prefer growing crops which are under the Minimum Support Price due to the guarantee of receiving a minimum level of selling price for their crops despite the low level of demand and market price for them. What this does is that it discourages these farmers from growing any other types of crop and decreases the diversification of crops. Diversification of crops is important to expand production and lower



the possible risk factors, like crops getting destroyed by pests and bad climates.



Advantages of Smart farming:

- Smart farming can improve the quality of products. Using sensors, drones can gather information such as the fertility of the soil and nutrient content. Farmers can access this information using smartphones and thereby can take conscious and accurate decisions with the help of AI.



- Smart farming saves plenty of time for farmers because they will have to visit the field a lesser number of times than when using traditional farming techniques. Smart farming techniques minimize the need to take care of monotonous tasks. For example, agricultural drones can observe the moisture in the soil using sensors. If it is below the predefined value, it will take the programmed action such as alerting the farmer or switching on the water spraying function in the drone. It will also result in more efficient use of water. Moreover, this will free farmers to concentrate on other things to improve farm productivity or they can even focus on other sources of income.
- Not just for agricultural lands, it can also help in managing livestock. For example, drones can identify sick animal, so that they can be separated from the group to prevent the spread of the disease.
- The world population is increasing, so the demand for food will continue to increase. Smart farming will help in achieving food security for all by improving agricultural productivity.

Challenges:

- The tools of smart farming are not affordable to some farmers, especially small farmers.
- Smart farming requires a continuous internet connection. Some areas do not have internet facilities and for some areas, it is too expensive to set up a 24/7 internet connection. So, this may create a new kind of inequality.
- Smart farming will create new jobs, but will also result in job losses, especially for landless agricultural labourers. Providing new employment opportunities to vulnerable people and training them with the new in-demand skills is a big challenge.

Way Forward:

- Technology for soil testing can help farmers change their farming practices. It will guide them towards improving soil health, resulting in higher yields and income, and promoting sustainable farming practices.
- Traditional technologies should be blended with new modern technologies like tissue culture, and genetic engineering, to achieve higher productivity.
- India needs to adopt the techniques of Precision farming, which uses sensors and other scientific equipment for an efficient way of farming. It will lower the average costs, increase farmer income, and solve many other problems related to the economy of scale.
- India needs to invest in agriculture research and development to be able to find ways to implement new cutting-edge technologies like GIS (Geographical Information Systems) and AIML (Artificial Intelligence and Machine Learning), in farming.
- Pest and weed attacks pose a concern for our farmers, due to which we lose a lot of our produce every year. A planned and integrated strategy is required to address the threats to plant and animal life, as well as consumer food safety.
- Water use patterns are awfully inefficient in India, where Indian farmers use two to four times more water to produce a unit of any major food crop. Indian farmers need to adopt more micro-irrigation measures that use water more efficiently.
- There is a need to connect local markets with national and global markets. The government needs to come up with policies to attract private investments in export-oriented activities and infrastructure in the agriculture sector.



Conclusion:

Smart farming has many advantages such as increased productivity of farms, reduced work for farmers etc. It is very much needed as the demand for food is increasing. Advancement in Indian agriculture will make it a viable career choice for our farmers in today's high-inflation economy. It will also help in creating new job opportunities for people from diverse fields of interest. India's being an IT giant has huge potential to revolutionise the farming sector of India, make India a global leader in agriculture and truly lead India to be "Atmanirbhar Bharat".

Your Turn!

What are your thoughts on smart farming? Express your point of view through the comment section below. And subscribe to our blog to read answers to the trending GD topics.

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References:

- [Smart Farming: The Future of Agriculture](#)
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