



Mains Practice Question

Q. Assess the role of Science and Technology in boosting the productivity and income of farmers in India. (150 words).

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Approach

- Discuss the areas where use of science and technology has made an impact on agriculture in India
- Discuss the problems that have arisen due to latest technologies
- Mention the newer technologies that are helping farmers currently

Introduction:

- In a country where two-thirds of the population depends on agriculture for their livelihood, the importance of this sector cannot be overemphasized. It accounts for nearly 17 per cent of the country's GDP and feeds 1.3 billion people.
- Our population continues to grow, placing an ever increasing strain on the sector. The country is also rapidly industrializing and there is massive migration to cities. Agricultural incomes are falling and the sector is in danger of being left behind.

Body:

Merits of science and Technology:

- **The Green Revolution:-** It is a set of research and technology initiatives increased agricultural production, increased farm productivity and raised farmer's income.
- **Use of machines on farms:** Use of agricultural equipment and machineries help to making farming and other agricultural practice easier for the farmer.
- **Disease control:** For those who venture into risky areas like poultry and piggery, efforts are made to seek the services of pathologists to ensure that the health of these animals and birds are properly taken care of. Though certain side effects are associated with certain chemicals ,but it is one of the most effective ways of reducing pathogens and fungal disease
- **Modern transportation:** Good roads and modern transport vehicle help in the evacuation of foodstuffs from the hinterland to the urban areas or others areas where they are needed are commonplace
- **ICTs (information and communication technologies) and Remote sensing** (via satellites), GIS, eNAM , crop and soil health monitoring, and technologies for livestock and farm management aimed at empowerment, enablement, and market expansion.

Demerits of science and Technology:

- Use of modern machines has **impacted environment** severely by depleting quality of soil through excess use of chemicals, air quality due to burning of diesel, kerosene in machines.
- It has also **lowered the water table** due to over extraction of water through jet pumps and has resulted in subsequent increase in soil salinity
- **Interregional disparity:-**The distribution of technologies is not uniform throughout the country.

Farmers of prosperous states are at the receiving end like- Punjab, Haryana, Maharashtra and the farmers of backward states still practice their age old techniques and knowledge

- **Interpersonal disparity:** Due to low literacy rate among farmers and digital divide, there is a rise of new class of middle man, who provide ICT services to farmers. They are also believed to distort the information for their own benefit.
- Due to high cost of maintenance of machine, it will increase the **financial burden** on farmer and Due to lack of education farmer are unable to run the machine properly.

Newer technology useful for farmers

- **Smart Farm Machinery:** Smart Farm Machinery is about producing more with less. Smart machines and technological breakthroughs have the potential to increase output, lower costs and boost farm incomes.
- **Micro Irrigation:-** frees the farmer from vagaries of seasonal monsoon while also conserving the limited water resources. With agriculture consuming about 80 per cent of the total renewable water resources, adoption of micro-irrigation practices will help conserve our precious water reserves and also boost yields and productivity.
- **Precision Farming:-** an approach to farm management that uses information technology to access real time data about crops, soil, weather etc. to ensure crops and soil receive exactly what they need for optimum health and productivity.

Conclusion:

We need a new phase in Indian agriculture which will be defined by innovation and technology; an age where we will look to balance productivity and economics with social and environmental considerations. This age will usher in an era of unprecedented productivity and prosperity for farmers.

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