

## Agriculture

**Q3. How does e-technology help farmers in the production and marketing of agricultural produce? Explain it.**

### Introduction

- Discuss the e-technology in India.

### Body

- Discuss how e-technology helps farmers in the production and marketing of agriculture.
- Describe the challenges and significance.

### Conclusion

- Conclude accordingly

### Introduction

The role of e-technology in transforming agriculture, focusing on how it aids farmers in both production and marketing of agricultural produce. It highlights the significance of digital tools and platforms in modernizing the agricultural sector.

### E technology in aid of farmers

- Given the significance of agriculture, utilizing technology can be crucial to improving production and technology transfer to give farmers useful tools, expertise, and know-how.

### Role in Increasing Production of Agricultural Produce

- With the help of technology, direct-to-farmer channels can be created, cutting out stores and middlemen.
- Through its online portal (nurture-farm), UPL, a traditional participant in the agrochemical industry, offers mechanization services and agrochemicals.

- **Access to Credit:** Businesses (banks and non-banks) involved in farm and rural loans can offer specialized products and lower loan risk by using the SBI Yono Krishi app to satisfy farmers' financial, input, and advisory needs.
- **Providing mechanization:** Businesses that sell farm equipment can assist farmers with mechanization. Mahindra provides a rental service for tractors.
- **Information Access:** Regardless of location, farmers may easily receive information about the weather, market signals, etc. Farmers will be able to act quickly and decisively thanks to this.
- Farmers may receive current weather, market prices, and crop advisories via SMS and the mKisan platform, which helps them make decisions quickly.
- E-technology can be used to monitor crops and livestock in a proper manner.
- soil condition sensors, and ear tag technology from companies like Smart-bow to track disease, herd infection, etc. E.g: Kisan Suvidha app empowers farmers with crop prices, weather updates, Agro-advisories, and nearby input dealers for informed decisions.
- Management of Spatial data: Geographic Information System (GIS) can be used to manage and analyze spatial data relating to crop productivity and agronomic factors. E.g.: Bhuvan, ISRO's portal, integrates GIS, satellite data, and weather info to assess crop losses, map affected areas, and expedite insurance claims for timely farmer compensation.

### **Role in the marketing of agricultural produce**

- Supply chain management: Create Market linkages for farmers so that they can better sell their produce. E.g. ITC has used its e-Choupal network to expand direct-from-farm procurement over the past 20 years.
- Price details: These can provide greater openness and higher prices for farmers.
- By linking the existing APMC mandis, E-NAM (National Agriculture Market) creates a unified national market and improves price realisation.
- Farmer producer groups, which collectivise a fragmented farmer base, assist businesses in accessing and scaling their business models, expanding their digital reach. E.g. Samunnati has pioneered an approach that anticipates and creates forward-looking solutions for farmer collectives.
- Access to Information: Various stakeholders can be provide agricultural marketing related information from a single window. E.g. AGMARKNET portal provides information to various stakeholders such as farmers, industry, policymakers and academic institutions etc.

### **Conclusion**

E-technology appears as a catalyst for growth and sustainability in the constantly changing landscape of Indian agriculture. It not only increases output and commercialization but also sets the path for a more resilient and prosperous agriculture sector by bridging the gap between farmers and resources. The symbiotic relationship between technology and agriculture holds the possibility of a better and more inclusive future for our farmers and the country as a whole as we embrace the digital age.

**Q13. Explain the changes in cropping pattern in India in the context of changes in consumption pattern and marketing conditions.**

#### **Introduction**

- Discuss the cropping pattern of India.

#### **Body**

- Discuss about the Changes in Cropping Pattern in India due to Changing Consumption Pattern and reason for it.

#### **Conclusion**

- Conclude accordingly.

#### **Introduction**

The composition and arrangement of various crops grown in a certain area throughout a set time frame, usually a cropping season or year, is referred to as the cropping pattern. In agricultural practices, it refers to the choice of crops, their order, and their spatial distribution.

#### **Changes in Cropping Pattern in India due to Changing Consumption Pattern:**

##### **1. Shift towards High-Value Crops:**

- There has been a shift from traditional staple crops like rice and wheat to high-value crops like fruits, vegetables, and cash crops due to changing consumer preferences for a more diverse and nutritious diet.
- **Example:** Increased cultivation of fruits like mangoes and vegetables like broccoli.

##### **2. Organic and Specialty Crops:**

- Changes in cropping patterns have resulted from farmers adjusting to serve niche markets, which has led to an increase in demand for organic and specialty crops like quinoa and exotic fruits.
- **For instance**, organic farming methods are used for crops with a high export potential, like organic tea.

### **3. Cereal Diversification:**

- There is a diversification from rice and wheat to other cereals like millets and barley as consumers seek healthier and gluten-free options.
- **Example:** Greater cultivation of millets like pearl millet (bajra) and finger millet (ragi).

### **4. Crop Intensification:**

- Increased consumption of protein-rich foods has led to greater cultivation of pulses, oilseeds, and legumes to meet dietary requirements.
- **Example:** Expanded production of lentils, soybeans, and chickpeas.

### **5. Urbanization and Perishable Crops:**

- Growing urbanization has increased the demand for perishable crops, pushing farmers to cultivate fruits and vegetables due to their shorter cultivation cycles.
- **Example:** More cultivation of tomatoes, bell peppers, and strawberries.

### **6. Processed Foods:**

- A rise in the consumption of processed and packaged foods has led to increased cultivation of crops used as raw materials for the food processing industry.
- **Example:** Greater cultivation of tomatoes for ketchup production.

### **7. Hybrid and Genetically Modified Crops:**

- Adoption of hybrid and genetically modified crops to satisfy particular dietary requirements, such as insect resistance, increased nutritional value, and extended shelf life.
- Bt cotton, for instance, increases cotton yield while enhancing insect resistance.

### **8. Cropping for Animal Feed:**

- Changes in livestock farming practices have influenced cropping patterns as more fodder crops are grown to meet the demand for meat and dairy products.
- **Example:** Cultivation of maize for animal feed.

## **Changes in Cropping Pattern in India due to Changing Marketing Conditions:**

### **1. Export-Oriented Crops:**

- Due to favorable worldwide market conditions, farmers are turning more and more to commodities with stronger export potential.
- As an illustration, consider the international craze for basmati rice.

## 2. Contract Farming:

- Cropping patterns have been impacted by the advent of contract farming agreements with agribusinesses since farmers are motivated to cultivate particular crops that these corporations require.
- Using contract farming, a poultry company might produce hybrid maize.

## 3. Supply Chain Infrastructure:

- Improvements in transportation, storage, and processing facilities have made it more viable for farmers to grow crops that require advanced handling and distribution.
- **Example:** Growth in the potato processing industry due to better cold storage facilities.

## 4. Price Fluctuations:

- Frequent price fluctuations in certain crops due to market conditions lead to farmers shifting their focus to more stable and profitable crops.
- **Example:** Farmers switching from sugarcane to soybeans due to better price stability.

## 5. Government Policies:

- Changes in government policies, such as minimum support prices (MSPs) and subsidies, can influence cropping choices as farmers respond to economic incentives.
- **Example:** Increase in wheat production due to government support.

## 6. Market Demand and Trends:

- Real-time market data and consumer trends influence farmers' choices regarding what to plant, as they aim to align with market demand.
- **Example:** Increased cultivation of exotic herbs due to a surge in demand for international cuisines.

## 7. Climate Resilience:

- Farmers may choose new crops as a result of changes in weather and climate that are more adapted to the new environment.
- For instance, in areas with a lack of water, switch from traditional rice agriculture to drought-tolerant crops.

## 8. Globalization:

- Cropping patterns have changed as a result of the growing of crops that may be exported worldwide due to access to foreign market
- An example would be the expansion of the Indian coffee market for export.

## Conclusion

Changes in consumption habits, market conditions, and other external factors all affect cropping patterns in India. In reaction to market dynamics and governmental rules, farmers modify their options to accommodate to shifting customer tastes and to maximise their economic returns.

**Q2. What are the direct and indirect subsidies provided to the farm sector in India? Discuss the issues raised by the World Trade Organization(WTP) in relation to agricultural subsidies.**

### Introduction

- Discuss about the direct and indirect subsidies provided to the farm sector in India.

### Body

- Discuss the issues raised by the World Trade Organization (WTO) in relation to agricultural subsidies.

### Conclusion

- Write way forward.

## Introduction

The GDP contribution of the agriculture industry is 17%, and it employs close to 50% of the workforce. However, the Indian agriculture industry has difficulties, such as erratic monsoon patterns, tiny and fragmented land holdings, little investment, and relatively slow output growth (only 3% increase in 2022–2023 according to the Economic Survey 2022-23). The government offers subsidies and support to the industry.

## Body

### Direct subsidies

- **Subsidies for Inputs:** The government offers subsidies for a variety of inputs, including irrigation, seeds, fertilizer, and pesticides.
- The government establishes the Minimum Support Price (MSP) as a price floor to guarantee farmers receive a minimum price for their products.

- **Direct stipend Support:** The government guarantees farmers a yearly stipend.
- PM Kisan Samman Nidhi (PM-KISAN) as an example Each qualifying farming family is given financial support under this program, which also includes the Rythu Bandhu (Telangana) and the KALIA Scheme (Odisha).
- **Export Promotion Programmes:** APEDA offers logistical and non-tariff services that support the promotion of agricultural product exports.

#### **Indirect Subsidies:**

- **Infrastructure Development:** By lowering post-harvest losses and enhancing market access, the construction of rural infrastructure, such as roads and storage facilities, indirectly aids the agricultural industry.
- The PMFBY, or Pradhan Mantri Fasal Bima Yojana, It is a program for crop insurance that offers farmers monetary security in the event that their crops are destroyed by natural disasters.
- Agriculture is a significant consumer of electricity, and farmers frequently obtain discounted electricity.
- **Credit subsidy:** The government lowers the cost of borrowing for farmers by providing a subsidy on agricultural loans.
- Investment in agricultural research and extension services benefits farmers indirectly by increasing crop yields and farming methods. Research and Extension Services: High Yielding Varieties (HYV).

**However, international trade regulatory authority World Trade Organisation (WTO) has raised some issues on India's agricultural subsidies because of following reasons:**

Issues raised by the World Trade Organization (WTO) in relation to agricultural subsidies


- **Trade Distortion and Unfair Competition:** The WTO expresses concern that India's agricultural subsidies, particularly MSP and input subsidies, can distort global markets by promoting underpricing of the country's agricultural products abroad.
- Subsidies are divided into permitted and non-permitted categories by the WTO. However, there is disagreement on the definition and classification of a certain subsidy.
- **Impact on Global Trade:** According to the WTO, excessive subsidies might result in the dumping of surplus produce on international markets, which would disrupt trade and have an adverse effect on farmers' lives in other nations.

- **Failure to abide by WTO regulations:** The WTO's Agriculture Agreement (AoA) places restrictions on the total amount of support (AMS) that a nation may offer. India's subsidies, particularly those related to MSP and procurement, have been criticized for exceeding the permissible levels.

## Conclusion

India's agriculture sector needs to be heavily subsidized. However, it's equally crucial to recognize and **reduce any potential trade distortions** that can result from this. In addition, when addressing the particular problems faced by emerging economies, international organizations like the WTO should take into account their demands for development.

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