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Q3

How does e-Technology help farmers in production and marketing of agricultural produce? Explain it.

UPSC Civil Services Mains 2023 · GS III · 10 marks · Crops, Irrigation and Marketing

Major crops - cropping patterns in various parts of the country; different types of irrigation and irrigation systems; storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers.

Core demand of the question

- Explain how e-technology helps farmers in production
- Explain how it helps in marketing of produce
- **Keep tools concrete:** weather, soil, advice, **e-NAM**, logistics

Revision summary

Weather, mKisan, **Soil Health Card** and drones improve the production decision.

PM-KISAN and **PMFBY** ride digital rails so cash and insurance reach the farmer.

e-NAM, AGMARKNET and e-warehouse receipts improve the sale decision.

FPOs and ONDC-type tools can widen the buyer set.

The phone works only if mandi assaying, storage and roads exist.

Introduction

E-technology in farming is not a slogan. It is weather on a phone, a soil card, a drone map, a warehouse receipt, and a price on **e-NAM (National Agriculture Market)**. Production decisions and sale decisions both improve when the farmer sees **timely data** instead of only the trader at the gate.

Body

Production

- **India Meteorological Department** nowcasts, **mKisan** and **Kisan Call Centres** give weather and pest advice in local languages so sowing and spray are timed.
- **Soil Health Card** and remote-sensing maps show nutrient gaps; this cuts blind use of urea.
- **Drones**, satellite imagery and **Kisan drones** under agricultural guidelines help survey crop stress, spray in a narrow window, and estimate area.
- Precision tools - drip with sensors, seeders with GPS in larger farms - save water and seed where the farmer can afford them.
- Digital **Direct Benefit Transfer** of **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)** and crop-insurance enrolment under **Pradhan Mantri Fasal Bima Yojana (PMFBY)** put cash and cover on an electronic trail, which is part of the production risk pad.

Marketing

- **e-NAM** links mandis so a lot can, in principle, find a buyer beyond the local yard, with quality assaying and online bidding.
- **AGMARKNET** and State price apps publish arrivals and rates, which weakens the information monopoly of the first trader.
- Electronic **Negotiable Warehouse Receipts** let stored grain become credit, so the farmer need not dump the harvest in one week.
- Farmer Producer Organisations using apps, **Open Network for Digital Commerce** pilots, and private traceability tools open a path to bulk buyers and exports.
- Logistics platforms for trucks and cold chain reduce spoilage of horticulture if the road and the pack-house exist.

Limits

- A phone does not replace a road, a dry warehouse, or an assaying lab. E-technology **amplifies** public mandi and storage reform; it does not substitute them.

Flow diagram

E-technology-technology -> Production
E-technology -> Marketing
Production -> Weather soil drone advice
Marketing -> e-NAM warehouse prices
Weather soil drone advice -> Better yield lower risk
e-NAM warehouse prices -> Better price less dump sale

Conclusion

E-technology helps production through weather, soil, pest and insurance data. It helps marketing through **e-NAM**, warehouse receipts and price visibility. The farmer gains only where connectivity, assaying and storage sit behind the screen.

Facts & figures

e-NAM

National Agriculture Market: online bidding across linked mandis with quality assaying.

PM-KISAN

Pradhan Mantri Kisan Samman Nidhi: Direct Benefit Transfer of income support to eligible landholding farmers.

PMFBY

Pradhan Mantri Fasal Bima Yojana: crop insurance with digital enrolment and crop-cutting or remote-sensing assessment.

Soil Health Card

Plot-level nutrient advice meant to cut excess fertiliser and raise input efficiency.

Kisan Call Centre

All-India 1800 advisory line; mKisan pushes SMS and app advice in regional languages.

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