



# Biotech-KISAN Programme

## Why in News

The **Ministry of Science and Technology** has issued a **Special Call for the NorthEast Region** as a part of its **Mission Programme “Biotech-Krishi Innovation Science Application Network (Biotech-KISAN)”**.

## Key Points

### ▪ About:

- It is a **scientist-farmer partnership** scheme **launched in 2017**.
- It is a **pan-India program**, following a **hub-and-spoke model** and stimulates entrepreneurship and innovation in farmers and empowers women farmers.
- The **Biotech-KISAN** hubs are expected to fulfil the technology required to generate agriculture and bio-resource related jobs and better livelihood ensuring biotechnological benefits to small and marginal farmers.
- Farmers are also **exposed to best global farm management and practices**.

### ▪ Ministry:

- This is a farmer-centric scheme developed by and with farmers under the **Department of Biotechnology, Ministry of Science and Technology**.

### ▪ Objective:

- It was **launched for agriculture innovation** with an objective to connect science laboratories with the farmers to find out innovative solutions and technologies to be applied at farm level.

### ▪ Progress:

- **146 Biotech-KISAN Hubs** have been established covering all 15 agroclimatic zones and 110 **Aspirational Districts** in the country.
- The scheme has benefitted **over two lakhs farmers** so far by increasing their agriculture output and income. **Over 200 entrepreneurs** have also been developed in rural areas.

### ▪ About the Present Call:

- The present call specifically focuses on the **North East Region (NER)** as it is predominantly agrarian **with 70% of its workforce** engaged in agriculture and allied sector for livelihood.
- The region produces **merely 1.5 %** of the country's food grain and continues to be a **net importer of food grains** even for its domestic consumption.
- The **NER has untapped potential** to enhance the income of the farming population by promotion of location specific crops, horticultural and plantation crops, fisheries and livestock production.
- The **Biotech-KISAN Hubs in NER** will collaborate with the top scientific institutions across the country as well as State Agricultural Universities (SAUs)/**Krishi Vigyan Kendras (KVKs)**/existing state agriculture extension services/system in the NER for demonstrations

of technologies and training of farmers.

## Biotechnology in Agriculture

### ▪ Agricultural Biotechnology:

- Agricultural biotechnology is a **range of tools**, including traditional breeding techniques, that **alter living organisms, or parts of organisms**, to make or modify products; improve plants or animals; or develop microorganisms for specific agricultural uses.
- Modern biotechnology today includes the tools of [genetic engineering](#).

### ▪ Examples:

- **Genetically Modified Organisms (GMO):** These are plants, bacteria, fungi and animals whose genes have been altered by manipulation. [GM plants](#) (Bt Cotton) have been useful in many ways.
- **Biopesticide: Bacillus thuringiensis is a naturally occurring soil bacterium** that causes disease on insect pests. It is **accepted in [organic farming](#) and is considered ideal for pest management** due to its low cost, ease of application, high virulence and narrow host specificity.

### ▪ Benefits:

- GMO leads to a number of advantages in the crops which include -there is **less loss after harvest**, the crops **can be modified to have additional nutrients value** for human welfare.
- The use of some of these crops **can simplify work and improve safety for farmers**. This allows farmers to spend less of their time managing their crops and **more time on other profitable activities**.

### ▪ Disadvantages:

- **Antibiotic Resistance:** There is a concern that new [antibiotic-resistant bacteria](#) could emerge which would be difficult to tackle with conventional antibiotics.
- **Potential of 'superweeds':** The transgenic plants could pollinate with the unwanted plants (weeds) and thereby relay the gene of herbicide-resistance or pesticide-resistance into them, thereby converting them into **'superweeds'**.
- **Loss of Biodiversity in Organisms:** The extensive use of agritech varieties of seeds have made some agriculturists fearful as this may hurt the biodiversity of plant species.
  - The extensive use of GMO varieties is because of the fact that they are more profitable and drought resistant which has made farmers abandon their traditional varieties of plants.

[Source: PIB](#)

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