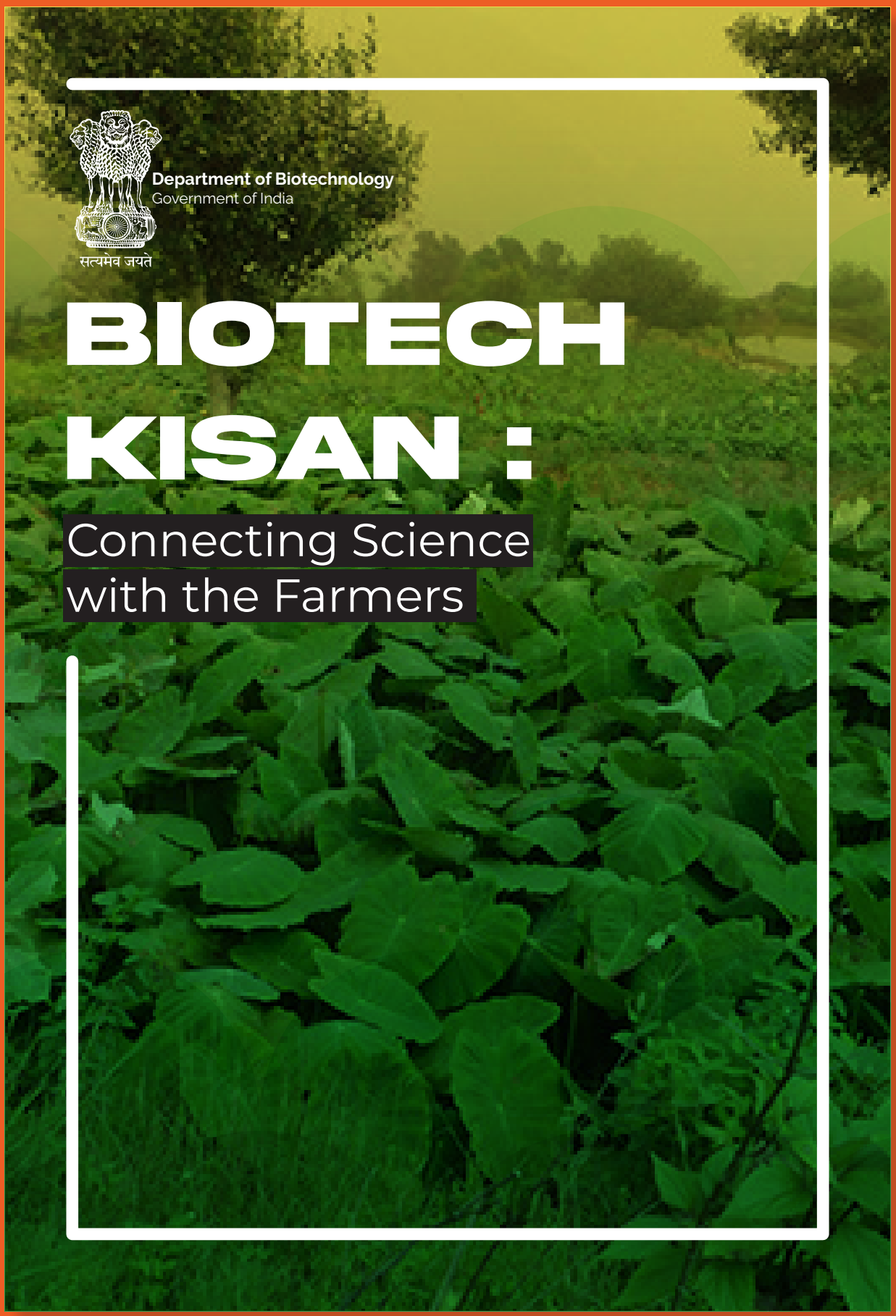

Department of Biotechnology
Government of India
सत्यमेव जयते
BIOTECH KISAN :
Connecting Science with the Farmers

INTRODUCTION

The agriculture sector's importance in India's economic and social growth is well recognised. First, nearly three-quarters of India's families depend on rural incomes. Second, the majority of India's poor (approximately 770 million people or about 70 percent) are found in rural areas. And third, India's food security depends on producing cereal crops, as well as increasing its production of fruits, vegetables and milk to meet the demands of a growing population with rising incomes. To do so, a productive, competitive, diversified and sustainable agricultural sector will need to emerge at an accelerated pace.[1]

THE NEED FOR A FARMER SCIENCE CONNECT

To address the critical need of bringing in new innovations and technologies for improved productivity, production and enhanced employment and income generation a need for creating a Science based platform to connect farmers with the scientists was felt. This was primarily to allow a two-way interaction between farmers and scientists so that the need-based farmer problems are addressed by innovative solutions through technological interventions. Some-key issues which need urgent attention are:

Lower agriculture productivity due to unavailability and high cost of seeds

Seed is critical for achieving higher crop yields and sustained growth in agricultural production. It is important to ensure that quality seeds are not out of reach of the majority of farmers, especially small and marginal farmers. Many a times these are not accessible because of exorbitant prices of better seeds. Both affordability and accessibility are critical.

A strong connect between Science and Society

Scientists work on a number of serious problems that are of national and global interest. The world faces enormous challenges with large populations, diminishing resources and the consequences of climate change. Scientist are eager to address these problems and find implementable solutions but need to develop a close connect with society for the best solutions to emerge.

Vast geography

The 329 million hectares of the geographical area the country is categorised in various agro-climatic zones based on physiography, soils, geological formation, climate, cropping patterns, and development of irrigation and mineral resources for broad agricultural planning and developing future strategies.[2] Each zone will have its own specialised challenges. There is a need to develop region specific intervention packages.

[1] https://www.worldbank.org/en/news/feature/2012/05/17/india-agriculture-issues-priorities
[2] https://vikaspedia.in/agriculture/crop-production/weather-information/agro-climatic-zones-in-india

Small landholdings

The problems faced by the Indian farmer are special, small landholdings and small livestock are the norm. As per the tenth agricultural census, small and marginal holdings (Below two hectares) constitute 86.21% of the total land holdings.[3] Special intervention packages focusing on frugal innovation will be very relevant in this case.

Interagency coordination among various Central and State Departments

A large number of central and state departments of agriculture and ICAR are implementing developmental programmes, doing research and disseminating technologies through KVKs, and other channels in an isolated manner. There is an urgent need to ensure proper coordination amongst all agencies and field functionaries to provide effective extension system for technology dissemination and deployment up to grassroots level.

GENESIS OF BIOTECH KISAN

The solutions developed in the laboratories need to necessarily address the problems faced by the Indian farmer. There is a **need for direct linkage between science laboratories and farms;** it is now imperative that the Indian scientist understand the problems of the local farmer and provide solutions to those problems. Likewise, it is necessary to expose farmers to the scientific solutions available by bringing him to the scientific environment/laboratory. This close interaction and need based research will allow innovative solutions and technologies to be developed and applied at farm level.

To **enhance the coordination** among various central and state departments, it was felt that biotechnological interventions in agriculture, horticulture, forestry and allied sectors through a single window channel may play a vital role in boosting productivity and economic empowerment of rural youths, woman and farmers.

HOW DOES BIOTECH KISAN FUNCTION?

In 2017, The Department of Biotechnology (DBT) launched a **farmers-centric Mission Programme** known as Biotech Krishi Innovation Science Application Network (Biotech KISAN), which **will link India's farmers with Indian and global best in science for India's future**.

Biotech KISAN is a scientist-farmer partnership scheme for agriculture innovation through participatory research with an objective to connect science laboratories with the farmers to find out innovative solutions and technologies to be developed and applied at farm level.

The programme **provides funding to establish the Biotech KISAN Hub in each of 15 agro-climatic zones of the country.**

[3] https://www.thehindu.com/sci-tech/agriculture/indian-farms-getting-smaller/article25113177.ece

Each Hub creates a network by **developing strong linkages with top quality scientific institutions** / State Agricultural Universities (SAUs) / Krishi Vigyan Kendras (KVKs) / existing state agriculture extension services / system and other Farmers' organizations in the region as well as linkages with leading international institutions / organizations. Biotech-KISAN Hubs also have a Tinkering Laboratory.

The aim of the programme is to **work with small and marginal farmers especially the woman farmers for better agriculture productivity through scientific intervention** and evolving best farming practices.

The core activities of Biotech KISAN Hub are as follows:

a. **Understanding the problems** of the local farmer.

b. **Scouting for available technologies and solutions** to problems of farmers in the region.

c. **Demonstration and scale-up** programmes for implementing the solutions to the problems of farmers – addressing water, soil, seed and marketing issues.

d. Creation of strong **Scientists-Farmers Interaction Platform** and connectivity; training programmes for the farmer and immersion programmes for scientists.

e. **Communication** set up through radio and TV and connectivity through social media.

f. Individual thematic **fellowship programmes** for selected farmers in the zone at high-tech science laboratories.

g. Special **solution-driven thematic fellowships to women farmers** *(Mahila Kisan Biotech Fellowship)* to develop them as leaders and grass root scientists.

The activities of the collaborating institutions includes the following:

a. Conduct training programmes for farmers in science laboratories

b. Training programmes for scientists in farms

2. It was also planned to develop **short-term training programmes by DBT** in partnership with international organisations / universities, where farmers will be exposed to best global farm management and practices.

3. The present programme **aims to provide technology solutions to the local**

problems of farmers towards **improving the agriculture productivity** by providing glue to different schemes and existing agriculture extension system.

4. The **establishment of Biotech KISAN Hubs in different agroclimatic zones will strengthen and empower the KVKs with latest and innovative technologies** by linking them with national scientific labs and institutions.

5. This programme aims at working on the basis of **cluster approach for economic upliftment** in rural areas based on affordable technologies and providing support to them.

6. The programme **promotes and develops bio-based agri-enterprises in rural areas** based on affordable technologies and providing support to them.

BIOTECH KISAN MAKING A DIFFERENCE

28
No. of Ongoing Biotech-KISAN Hubs supported with

164
Satellite centers

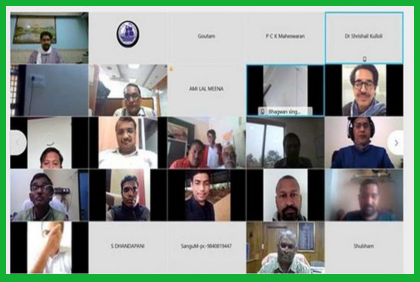
105
Aspirational Districts covered

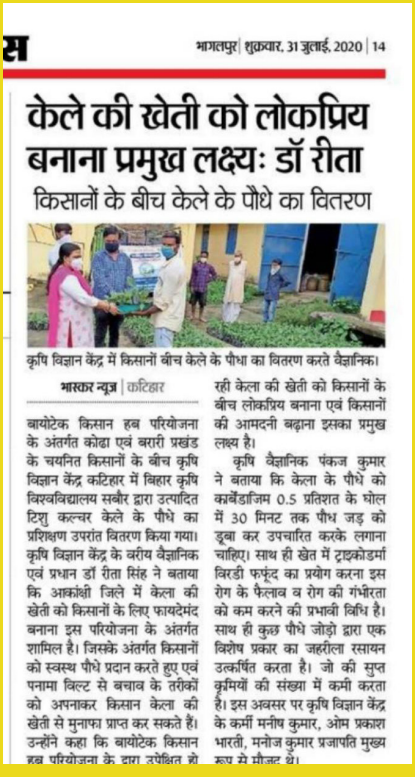
300
Demonstrations carried out

50
Interventions carried out

7000
Frontline demonstrations in the field of farmers

50000+
Farmer beneficiaries covered under training programmes and workshops





भागलपुर | शुक्रवार, 31 जुलाई, 2020 | 14

केले की खेती को लोकप्रिय बनाना प्रमुख लक्ष्यः डॉ रीता

किसानों के बीच केले के पौधे का वितरण

कृषि विज्ञान केंद्र में किसानों बीच केले के पौधा का वितरण करते वैज्ञानिक।

भास्कर न्यूज | कटिहार

बायोटेक किसान हब परियोजना के अंतर्गत कोढ़ा एवं बरारी प्रखंड के चयनित किसानों के बीच कृषि विज्ञान केंद्र कटिहार में बिहार कृषि विश्वविद्यालय सबौर द्वारा उत्पादित टिशु कल्चर केले के पौधे का प्रशिक्षण उपरांत वितरण किया गया। कृषि विज्ञान केंद्र के वरीय वैज्ञानिक एवं प्रधान डॉ रीता सिंह ने बताया कि आकांक्षी जिले में केला की खेती को किसानों के लिए फायदेमंद बनाना इस परियोजना के अंतर्गत शामिल है। जिसके अंतर्गत किसानों को स्वस्थ पौधे प्रदान करते हुए एवं पनामा विल्ट से बचाव के तरीकों को अपनाकर किसान केला की खेती से मुनाफा प्राप्त कर सकते हैं। उन्होंने कहा कि बायोटेक किसान हब परियोजना के द्वारा उपेक्षित ही रही केला की खेती को किसानों के बीच लोकप्रिय बनाना एवं किसानों की आमदनी बढ़ाना इसका प्रमुख लक्ष्य है।

कृषि वैज्ञानिक पंकज कुमार ने बताया कि केला के पौधे को कार्बेंडाजिम 0.5 प्रतिशत के घोल में 30 मिनट तक पौध जड़ को डूबा कर उपचारित करके लगाना चाहिए। साथ ही खेत में ट्राइकोडर्मा विरडी फफूंद का प्रयोग करना इस रोग के फैलाव व रोग की गंभीरता को कम करने की प्रभावी विधि है। साथ ही कुछ पौधे जोड़ो द्वारा एक विशेष प्रकार का जहरीला रसायन उत्सर्पित करता है। जो की सुप्त कृमियों की संख्या में कमी करता है। इस अवसर पर कृषि विज्ञान केंद्र के कर्मी मनीष कुमार, ओम प्रकाश भारती, मनोज कुमार प्रजापति मुख्य रूप से मौजूद थे।

Department of Biotechnology
Government of India

सत्यमेव जयते

The science and technology that had not changed for hundreds of years, changed in the past twenty five years. Our farmers must reap the benefit from these rapid changes. Our country is full of diversity, not just in languages and attires. Our land, our way of agriculture, our parks, our fruits, our flowers all have their own uniqueness. Therefore, we must start with a holistic approach to modernize our agriculture in a manner that takes into consideration the special needs of different regions about conducting scientific research, bringing about scientific changes, what should be the intervention of modern technology and how we can move in the direction of mechanising our agriculture.

- Narendra Modi, Hon'ble Prime Minister of India

Science and technology is one of the most powerful tools for solving all kinds of problems - agriculture, potable water, energy, health and so on. There is a need to connect science with these fields to solve problems.

- Dr Harsh Vardhan,
Hon'ble Minister of Science and Technology