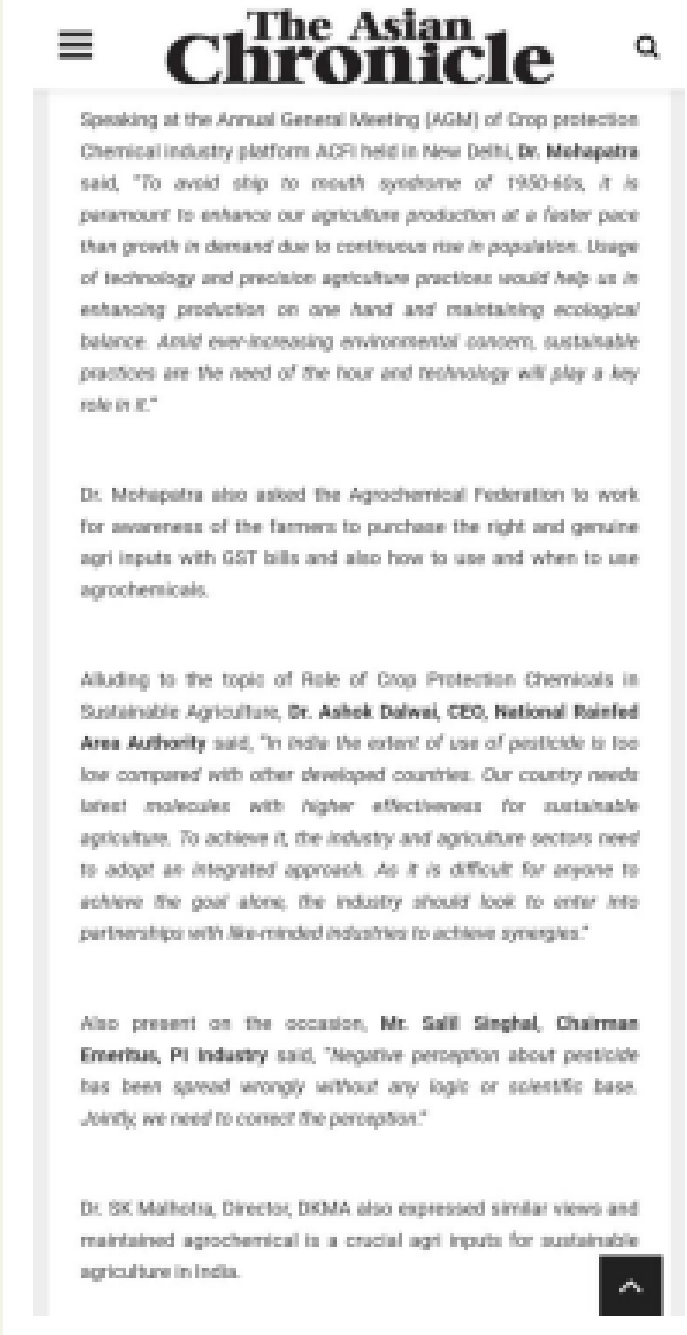
AGRO CHEM FEDERATION OF INDIA

ACFI NEWSLETTER

SEPTEMBER 2022



The Asian Chronicle

Speaking at the Annual General Meeting (AGM) of Crop protection Chemical industry platform ACFI held in New Delhi, **Dr. Mohapatra** said, *"To avoid ship to mouth syndrome of 1950-60s, it is paramount to enhance our agriculture production at a faster pace than growth in demand due to continuous rise in population. Usage of technology and precision agriculture practices would help us in enhancing production on one hand and maintaining ecological balance. Amid ever-increasing environmental concern, sustainable practices are the need of the hour and technology will play a key role in it."*

Dr. Mohapatra also asked the Agrochemical Federation to work for awareness of the farmers to purchase the right and genuine agri inputs with GST bills and also how to use and when to use agrochemicals.

Alluding to the topic of Role of Crop Protection Chemicals in Sustainable Agriculture, **Dr. Ashok Dalwai, CEO, National Rainfed Area Authority** said, *"In India the extent of use of pesticide is too low compared with other developed countries. Our country needs latest molecules with higher effectiveness for sustainable agriculture. To achieve it, the industry and agriculture sectors need to adopt an integrated approach. As it is difficult for anyone to achieve the goal alone, the industry should look to enter into partnerships with like-minded industries to achieve synergies."*

Also present on the occasion, **Mr. Salil Singhal, Chairman Emeritus, PI Industry** said, *"Negative perception about pesticide has been spread wrongly without any logic or scientific base. Jointly, we need to correct the perception."*

Dr. SK Malhotra, Director, DKMA also expressed similar views and maintained agrochemical is a crucial agri inputs for sustainable agriculture in India.

Precision Agriculture Sector Must Gain Pace for Ecological Balance: Dr. Trilochan Mohapatra Former DG, ICAR

Posted On: 2022-09-13

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Delhi, Sept. 13 – Precision agriculture and usage of technology in the agriculture sector must gain pace as it would help twin causes of achieving reasonable growth and maintaining ecological balance at the same time, said Dr. Trilochan Mohapatra, Former Director General, Indian Council of Agriculture Research (ICAR).

Speaking at the Annual General Meeting (AGM) of Crop protection Chemical industry platform ACFI held in New Delhi, Dr. Mohapatra said, To avoid ship to mouth syndrome of 1950-60s, it is paramount to enhance our agriculture production at a faster pace than growth in demand due to continuous rise in population. Usage of technology and precision agriculture practices would help us in enhancing production on one hand and maintaining ecological balance. Amid ever-increasing environmental concern, sustainable practices are the need of the hour and technology will play a key role in it.

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ANI Press Releases

Precision Agriculture Sector must gain pace for ecological balance: Dr Trilochan Mohapatra Former DG, ICAR

ANI PR 13 September, 2022 03:13 pm IST

NewsVoir

ACFI Source Name:Agro Chem Federation of India

Precision Agriculture Sector Must Gain Pace for Ecological Balance: Dr. Trilochan Mohapatra Former DG, ICAR

Sep 13, 2022
13:33 PM

New Delhi, India

Precision agriculture and usage of technology in the agriculture sector must gain pace as it would help twin causes of achieving reasonable growth and maintaining ecological balance at the same time, said Dr. Trilochan Mohapatra, Former Director General, Indian Council of Agriculture Research (ICAR).

Business Standard

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Precision Agriculture Sector must gain pace for ecological balance: Dr Trilochan Mohapatra Former DG, ICAR

Krishi Jagran
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ACFI 5th Annual General Meeting: Top entrepreneurs attending ACFI 5th AGM at The Lalit hotel, New Delhi. Agro Chem Federation of India is also doing a plenary session on 'Role of Crop Protection Chemicals in Sustainable Agriculture'. Here are some of the pics coming straight from the event.
Fill the form for more information:
https://bit.ly/3akT5YN
#ACFI #agrochem #cropprotection #chemicals #digitalmedia #krishijagran #socialmedia #sustainableagriculture #agriculture #farmers #events #newdelhi #TheLalitHotels

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Usage of technology and precision agriculture practices would help us in enhancing production on one hand and maintaining ecological balance.

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#DrTrilochanMohapatra #IndianCouncilofAgricultureResearch #DrAshokDalwai #NationalRainfedAreaAuthority #DrSKMalhotra #DirectoratofKnowledgeManagementinAgriculture #DrKalyanGoswami #AgroChemFederationofIndia #ParikshitMundhra

ICAR- Indian Council of Agricultural Research
Agro Chem Federation of India

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"Sustainable Agriculture rests on the principle that we must meet the needs of the present without compromising the ability of future generations to meet their own needs", said Sh Salil Singhal, popularly revered as the Bheeshma Pitamah of the Crop Care Industry at the 5th AGM of Agro Chem Federation of India

AMISH CROP SCIENCES | Godrej Agrovet Limited | Atul Ltd | Bayer | Biostadt India Limited | Crystal Crop Protection Limited | Chambal Fertilisers and Chemicals Limited | Deepak Group Co | Dhanuka Agritech Ltd. | FMC Corporation | Gharda Chemicals Limited | GSP Crop Science Pvt Ltd | Hikal Ltd | ICHIBAN CROP SCIENCE LIMITED | Indogulf Cropsciences Limited | Indofil Industries Limited | Mahamaya Lifesciences | Mahindra Group | Mankind Agritech | NACL Industries Limited (formerly known as "Nagarjuna Agrichem Limited") | Parijat Industries India Pvt. Ltd. | PI Industries Ltd | Safex Chemicals India Ltd | Sinochem International Corporation | Syngenta | Sumitomo Chemical Latin America | Willowood | Mamta Jain

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एसीएफआयची शेतकऱ्यांसाठी जनजागृती

ॲग्रो केम फेडरेशन ऑफ इंडिया 'एसीएफआय' ने आज एक व्यापक मोहीम सुरू केली. कीटकनाशकांच्या इष्टतम वापराबाबत शेतकऱ्यांना जागरूक करणे, यामुळे शेतकऱ्यांना बिलाविना कीटकनाशके खरेदी करणे टाळता येणार आहे. केंद्रीय मंत्री नितीन गडकरी यांनी मोहिमेचा

शुभारंभ केला. उद्योग सदस्यांसह विविध भागधारक आणि एसआरबी-आयसीएआरचे माजी अध्यक्ष डॉ. सी. डी. मायी सहभागी झाले. या 'जागो किसान जागो' उपक्रमात पाच मोबाईल व्हॅन चालवण्यात येणार आहेत. याद्वारे दर्जेदार कीटकनाशके वापरण्याचा संदेश शेतकऱ्यांपर्यंत पोहोचवला जाईल. यात ड्रोनसारख्या आधुनिक तंत्रज्ञानाबाबत, बिलाशिवाय कृषी निविष्ठा खरेदी करण्याबाबतही चर्चा होईल. ■

एसीएफआयतर्फे शेतकऱ्यांना शिक्षित करण्यासाठी मोहीम सुरू

नागपूर ■ ॲग्रो केम फेडरेशन ऑफ इंडिया एससीएफआयने आज एक व्यापक मोहीम सुरू केली. कीटकनाशकांच्या इष्टतम वापराबाबत शेतकऱ्यांना जागरूक करणे, यामुळे शेतकऱ्यांना बिलाविना कीटकनाशके खरेदी करणे टाळता येणार आहे. केंद्रीय वाहतूक आणि महामार्गमंत्री नितीन गडकरी यांनी त्याचा शुभारंभ केला. तसेच, उद्योग सदस्यांसह विविध भागधारक आणि एसआरबी-आरसीएसआरचे माजी अध्यक्ष डॉ. सी.डी. माई यात सामील झाले.

जागो किसान जागो उपक्रमात पाच मोबाईल व्हॅन चालवण्यात येणार आहेत. याद्वारे दर्जेदार कीटकनाशके वापरण्याचा संदेश शेतकऱ्यांपर्यंत पोहोचवला जाईल. यात ड्रोनसारख्या आधुनिक तंत्रज्ञानाबाबत, बिलाशिवाय कृषी निविष्ठ खरेदी करण्याबाबातही चर्चा होईल.

Krishi Jagran
3 d ·

JAGO KISHAN JAGO: Under ACFI Stewardship program 'Kisan Kalyan Karykram' is a a campaign 'Jago Kishan Jago' meant to educate, engage and empower the Indian farmers. Today onwards, 5 mobile vans will be flagged off by Nitin Gadkari at Vanamati Auditorium, Nagpur. It's to tell the farmers about the 'judicious use of plant protection chemicals, and getting GST bill against their every purchase.

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Agro Chem Federation of India launches mass awareness campaign for farmer education in the August presence of Hon'ble Shri Nitin Gadkari
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Ministry of Road Transport & Highways - India

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Indian Agriculture Professionals (IAP)
Agro Chem Federation of India • You
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We are glad to inform you that, under ACFI Stewardship program 'Kisan Kalyan Karykram' we are launching a mass awareness campaign 'Jago Kishan Jago' to educate, engage and empower the Indian farmers.
Today at at 10.30 am , 5 mobile vans will be flagged off by Honourable Minister Shri Nitin Gadkari Ji, at Vanamati Auditorium, Nagpur.
Next 1 month, these vans would go to various rural Districts of Maharashtra to educate the farmers on the 'judicious use of plant protection chemicals, buying agri-inputs with the recommendation of KVK Scientists, Agriculture Officers and getting GST bill aginst their every purchase'.
#jagokisanjago #ACFI #awareness #nitingadkari #Maharashtra #nagpur #agriculture #kisankalyan

किसानों को जागरूक करेगी 5 मोबाइल वैन्स

▪ केंद्रीय मंत्री गडकरी की उपस्थिति में जनजागरुकता अभियान शुरू

एजेंसी | मुंबई . एग्रो केम फेडरेशन ऑफ इंडिया 'एसीएफआई' ने एक जन अभियान शुरू किया है जो किसानों को कीटनाशकों के उचित उपयोग के बारे में जागरूक करेगी। इससे किसानों को बिना बिल के कीटनाशकों की खरीद से बचने में मदद मिलेगी। केंद्रीय परिवहन और राजमार्ग मंत्री नितीन गडकरी ने इसका शुभारंभ किया। इसमें उद्योग जगत के सदस्यों और विभिन्न हितधारक सहित एएसआरबी-आईसीएआर के पूर्व अध्यक्ष डॉ. सी.डी. माई शामिल हुए। इस अभियान में 5 मोबाइल वैन्स रवाना की गई जो किसानों को अच्छी गुणवत्ता युक्त इनपुट के उपयोग के बारे में बताएगी, और ड्रोन जैसी आधुनिक तकनीक के बारे में भी बताएगी, इसके साथ ही बिना बिल के कृषि-इनपुट की खरीद के खिलाफ भी किसानों को जागरूक करेगी। गडकरी ने कहा, 'भारत दुनिया में कृषि उपज का दूसरा सबसे बड़ा उत्पादक देश है, लेकिन इसके बावजूद अंतरराष्ट्रीय व्यापार में हमारे देश की हिस्सेदारी मुश्किल से 3% है। यह मुख्य रूप से कुछ अन्य देशों की तुलना में कम फसल उपज के कारण है। सही तकनीक और गुणवत्ता इनपुट का उपयोग करके फसल की पैदावार में सुधार किया जा सकता है। एसीएफआई और उसके सदस्यों की आज की पहल बहुत आगे तक जाएगी।'

ACFI launches mass awareness campaign for farmer education in august presence of Nitin Gadkari

Nagpur: Argo Chem Federation of India ACFI' today launched a mass campaign. It is to aware farmers about optimal use of Pesticides. This will help the farmers to avoid purchase without Bill. Shri Nitin Gadkari, Union cabinet minister for Transport and Highways launched it. Also, various stakeholders including industry members and Dr. C.D Mayee, past Chairman of ASRB- ICAR, joined it. This 'Jago Kisan Jago' initiative will run five mobile vans. It will spread the message about using quality pesticides to farmers. It will also talk about modern technology like Drones, buying Agri-inputs against a bill. Gadkari said, "India is the second largest producer of Agri produce in the World, but despite that our country's share in the global trade is only 3%. This is due to lower crop yield as compared to some other nations. By using right technology and quality inputs, the crop yield can improve. Today's initiative by ACFI & its members will go a long way." India has around 2.4% of world's arable land,4% of water resources and 18% of the world population but second largest producer of Agri produce in the World. Shri Abdul Sattar, Agriculture minister, Maharashtra also joined the campaign unveiling ceremony. He has appreciated the noble initiative to spread awareness of purchasing pesticides with GST bill. This is the only way to get rid of misbranded products. Praising the initiative, Dr C D Mayee emphasized on using like insecticides, herbicides, and fungicides, in optimal amount to get best results without harming soil conditions. Considering the threats of climate change Dr. Mayee said, "there is an urgent need to bring reform in the system that enables introduction of new Pesticides. Dr. Kalyan Goswami, Director General, ACFI echoed similar views. He commented "It is important to check the sale of bio-products laced with unauthorized and unregistered chemical pesticides by dummy companies. The need of the hour is to control illegal import of pesticides by mis-declaration which is not only causing a huge loss to farmers, but also impacting the nation's revenue collection. It poses a grave threat to India's food security and environment." ACFI is trying to create awareness against the illegal, smuggled, duplicate, counterfeit network which are deceiving the farmers and endangers our national resources. It harms the health of soil drains farmer's pocket. "In the interest of all the stakeholders of the agriculture sector, it is paramount for government undertakings and private players to work together to achieve desired objectives. Enforcement mechanism needs to improve, and miscreants need to be brought to books," said Mr. Sanjay Agrawal, Director, Indo Gulf Fertilizer. Usages of sub-lethal doses of pesticides are also a cause for worry. Last year, 9 Lacs acres of chili crops destroyed in South India, especially in Karnataka, Andhra Pradesh, and in Telangana due to the attack of black thrips. Recently a committee under the leadership of GVL Narasimhan formed to study the impact of Thrip attack on Chili in Southern Part of India. It revealed the nexus of illicit trader and how badly it impacts the farmers and Rural Economy. This will grossly influence the dream of Making of a 5trillion dollar economy with one Trillion dollars coming from Agriculture. We can clearly see the scope of growth of Agriculture by increasing per hectare yield and quantum of Agri-produce in India, provided innovative technology pesticides used appropriately in the prescribed quantities. These modern technology products are not available to our farmers which is evident from the fact that out of 1,175 pesticide molecules (both chemical and biological origin) registered the World over, China has 950+, USA has 1057+, Pakistan & Vietnam have 450+, whereas only 299 molecules registered for use in India. This is because of our lax registration system, non-promotion of modern technology pesticides and usage of fake, illegal, counterfeit, misbranded pesticides. These are key reasons of the Indian GDP from Agriculture being almost a third in comparison to China. Particulars China India Arable Land (2018) 119.49 Mn ha 156.42 Mn ha Rainfall 645 mm 1083 mm GDP (Agriculture) (2019) US$ 1004 billion US$ 460 billion Pesticides Consumption (2018) 13.07 kg / ha 0.34 kg / ha Fertilizers Consumption (Nitrogen + Potash + Phosphate) (2018) 346 kg / ha 161.5 kg / ha Source: Pesticides - 2018 FAO, GDP - 2019 World Bank, Fertilizer - FAO 2018, Arable land - FAO - 2018, Agriculture Land - FAO 2018 (http://www.fao.org/faostat/en/#data/RL) About Argo Chem Federation of India Argo Chem Federation of India (ACFI) is an industry body representing manufacturers/ importers of technical and formulation of pesticides at PAN India level. ACFI has partnered with Academic Institutions, Farmer Associations, Associated Government & Non-Government Organizations, etc. We work in the interest of Farmers by educating them about Plant Protection Chemicals (Pesticides) for higher yields and better quality of agricultural produce of various crops, involving the right dose, timely and appropriate application methodology and use of PPEs. For more information: Dr. Kalyan Goswami, Director General, ACFI, kalyan.goswami@acfiindia.com; +91-9871960014.

एसीएफआई का किसानों के लिए जन जागरुकता अभियान

5 मोबाइल वैन्स की गई रवाना

नागपुर. एग्रो केम फेडरेशन ऑफ इंडिया (एसीएफआई) ने एक जन अभियान शुरू किया है, जो किसानों को कीटनाशकों के उचित उपयोग के बारे में जागरूक करेगी. इससे किसानों को बिना बिल के कीटनाशकों की खरीद से बचने में मदद मिलेगी. केंद्रीय परिवहन और राजमार्ग मंत्री नितिन गडकरी ने इसका शुभारंभ किया. इसमें उद्योग जगत के सदस्य और विभिन्न हितधारक सहित एएसआरवी-आईसीएआर के पूर्व अध्यक्ष डॉ. सी.डी. माई शामिल हुए. इस अभियान में 5 मोबाइल वैन्स 'जागो किसान जागो' के नारे के साथ रवाना की गईं, जो किसानों को अच्छी गुणवत्ता युक्त इनपुट के उपयोग के बारे में बताएगी और ड्रोन जैसी आधुनिक तकनीक के बारे में भी

बताएगी. इसके साथ ही बिना बिल के कृषि-इनपुट की खरीद के खिलाफ भी किसानों को जागरूक करेगी. गडकरी ने कहा कि भारत दुनिया में कृषि उपज का दूसरा सबसे बड़ा उत्पादक देश है, लेकिन इसके बावजूद अंतर्राष्ट्रीय व्यापार में हमारे देश की हिस्सेदारी मुश्किल से 3% है. यह मुख्य रूप से कुछ अन्य देशों की तुलना में कम फसल उपज के कारण है. सही तकनीक और गुणवत्ता इनपुट का उपयोग करके फसल की पैदावार में सुधार किया जा सकता है. एसीएफआई और उसके सदस्यों की यह पहल बहुत आगे तक जाएगी. भारत में दुनिया का लगभग 2.4 फीसदी कृषि योग्य भूमि, 4 फीसदी जल संसाधन और दुनिया की 18 फीसदी पर आबादी है. महाराष्ट्र के कृषि मंत्री अब्दुल सत्तार भी इस अनावरण समारोह में शामिल हुए. उन्होंने जीएसटी बिल के साथ कीटनाशकों की खरीद के प्रति जागरूकता फैलाने की पहल की सराहना की और कहा कि नकली ब्रांड के उत्पादों से छुटकारा पाने का यही एकमात्र तरीका है. इस पहल की प्रशंसा करते हुए, डॉ सी डी माई ने मिट्टी को नुकसान पहुंचाए बिना सर्वोत्तम परिणाम प्राप्त करने के लिए कीटनाशकों, शाकनाशी और कवकनाशी जैसे कीटनाशकों के उपयोग पर जोर दिया.

किसान जन जागरूकता अभियान शुरू

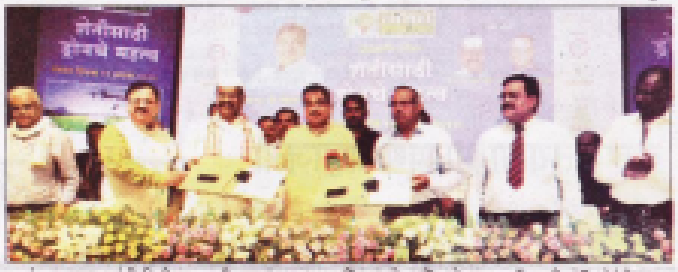
ACFI का किसानों के लिए जन जागरूकता अभियान

■ नागपुर, व्यापार प्रतिनिधि. एग्रो केम फेडरेशन ऑफ इंडिया 'एसीएफआई' ने जन जागरूकता अभियान शुरू किया है जो किसानों को कीटनाशकों के उचित उपयोग के बारे में जागरूक करेगी. इससे किसानों को बिना बिल के कीटनाशकों की खरीद से बचने में मदद मिलेगी. केंद्रीय परिवहन और राजमार्ग मंत्री नितिन गडकरी ने इसका शुभारंभ किया. इसमें उद्योग जगत के सदस्यों और विभिन्न हितधारक सहित एएसआरवी-आईसीएआर के पूर्व अध्यक्ष डॉ. सी.डी. माई शामिल हुए. अभियान में 5 मोबाइल वैन्स 'जागो किसान जागो' के नारे के साथ रवाना की गई. समय की मांग है कि गलत कीट-नाशकों के अवैध आयात को नियंत्रित किया जाए, जिससे न केवल किसानों को भारी नुकसान हो रहा है, बल्कि देश के राजस्व संग्रह पर भी असर पड़ रहा है. यह भारत की खाद्य सुरक्षा और पर्यावरण के लिए गंभीर खतरा है. एसीएफआई उन अवैध, नकली, तस्करी वाले और जाली नेटवर्क के खिलाफ जागरूकता पैदा करने की कोशिश कर रहा है क्योंकि यह मिट्टी को भी नुकसान पहुंचाता है जिससे किसान की आय पर असर पड़ता है.

अंतरराष्ट्रीय व्यापार में हिस्सेदारी बढ़े : गडकरी- गडकरी ने कहा कि भारत दुनिया में कृषि उपज का दूसरा सबसे बड़ा उत्पादक देश है लेकिन इसके बावजूद अंतरराष्ट्रीय व्यापार में हमारे देश की हिस्सेदारी मुश्किल से 3% है. यह मुख्य रूप से कुछ अन्य देशों की तुलना में कम फसल उपज के कारण है. सही तकनीक और गुणवत्ता इनपुट का उपयोग करके फसल की पैदावार में सुधार किया जा सकता है. इस अवसर पर महाराष्ट्र के कृषि मंत्री अब्दुल सत्तार, एसीएफआई के महानिदेशक डॉ. कल्याण गोस्वामी, इंडो गल्फ फर्टिलाइजर के निदेशक संजय अग्रवाल ने विचार रखे.

राज्यात तीन नवे ड्रायपोर्ट करणार

• नितीन गडकरी यांची घोषणा • ॲग्रो व्हिजनतर्फे ड्रोनवर चर्चा



समंजस करारप्रसंगी नितीन गडकरी, अब्दुल सत्तार, रवींद्र ढाकणे, रवींद्र बोरटकर, डॉ. मानवे, डॉ. गोरंटीवार

ACFI launches mass awareness campaign for farmer education in August presence of Nitin Gadkari

written by TLN Team

September 13, 2022

Argo Chem Federation of India ACFI' today launched a mass campaign. It is to aware farme

Govt to set up cooperative of seed culture to promote organic farming

STATESMAN NEWS SERVICE
NEW DELHI, 10 SEPTEMBER

The government will form in the next two months a multi-state cooperative of seed culture and marketing and certification of organic products, which will directly benefit farmers involved in organic farming.

This was announced by the government today after a two-day Conference of state cooperation ministers organised by the Ministry of Cooperation in New Delhi on 8-9 September. Union Home & Cooperation Minister Amit Shah inaugurated the conference.

In the two-day conference, cooperation ministers from 21 states and Lt. Governors of two UTs, and top officials shared their views and suggestions for strengthening the cooperative sector.

Gyanesh Kumar, Secretary in the Ministry of Cooperation, highlighted the strength of the cooperative movement in the Country and urged the states to adopt state-of-art Software along with up-to-date hardware under the Project on computerisation of PACS, as approved by the Government of India.

Further, to give a boost to the export of cooperatives, the Ministry, he said, was facilitating the registration of a National Level Cooperative Export House that would work in close coordination with the Ministry of External Affairs and the Ministry of Commerce to harness the export potential of nearly 30 crore people associated with the cooperative movement.

Gyanesh Kumar also briefed about the multi-state cooperative society being registered for production, procurement, branding, and marketing of organic products and quality Seeds. He further conveyed that the Ministry of Cooperation has been taking action to ensure that cooperatives were treated at par with other economic forums.

The conference concluded with a resolve by all stakeholders to work together for giving impetus to a cooperative-based economic model in the country to realise the mantra of "Sahkar Se Samaridhi".

1.71 lakh farmers grow chemical-free crops in Himachal Pradesh

INDO-ASIAN NEWS SERVICE
SHIMLA, 11 SEPTEMBER

A total of 1.71 lakh farmers in Himachal Pradesh are growing chemical-free crops, a statement said on Sunday. An online portal for certification of 50,000 farmers doing natural farming will also be developed, it stated.

Farmers are also happy by using natural resources without the use of chemical fertilizers or spraying pesticides. This has been made possible under the state government's flagship programme -- Prakritik Kheti Khushal Kisan Yojana.

With the incentives of the government, the inclination of the farmers towards natural farming has increased many folds in the state. Oriented towards chemical fertilizer-free farming, the women are playing an important role in taking Himachal forward in the production of natural crops, an official statement said. Residents of Panjayanu village in Pangana subtehsil of Mandi district have set an example by adopting natural farming. Local farmer Leena Sharma has inspired villagers to adopt natural farming by setting an example. She got a chance to participate in the training camp of agricultural scientist and Padma Shri Subhash Palekar organised by the Department of Agriculture.

After this, Leena started natural farming in her fields and with her inspiration today about 30 families of the village have adopted it.

Another woman from the village, Satya Devi, has become a master trainer of natural farming. Apart from traditional crops, groundnut, garlic, chilli, pulses, beans, tomato, brinjal, capsicum, linseed and coriander are being cultivated in the village.

Natural farming has increased the efficiency and fertility of their fields, while their income has also increased.

Official data says about 9,421 hectares is being cultivated through natural techniques by 1.71 lakh farmers of the state.

For this fiscal, the state has set a target of bringing 50,000 acres under natural farming. Besides, 50,000 farmers will be certified as natural farmers. An online portal is also being developed for this.

Prime Minister Narendra Modi has also appreciated the model of natural farming in Himachal Pradesh on national forums.

The aim of Prakritik Kheti, Khushal Kisan Yojana is to increase income by reducing the cost of crop production, to save soil and humans from the ill effects of chemical farming.

Under this scheme, the solution of indigenous cow dung and cow urine (gau mutra) and some local flora is used for spraying crops in place of chemical pesticides.

For making inputs to be used in natural farming, farmers are being provided 75 per cent subsidy on drums subject to a maximum of Rs 750 per drum.

A farmer family can get this benefit on three such drums. A total of 80 per cent subsidy is being given to Gaushala Parivartan for making the Gaushalas or cow sheds and collecting cow urine, with a maximum limit of Rs 8,000.

For the supply of inputs used in natural farming, there is also a provision of assistance of up to Rs 10,000 for opening natural farming resource reserves in each village.

So far, about Rs 58.46 crore has been spent under the Pratikriti Kheti Khushal Kisan Yojana.

Apart from developing a natural farming model in all 3,615 panchayats, work is being done to convert 100 villages into natural farming villages.

With the aim of making the farmers self-reliant, a target of establishing 10 new FPOs (Farmer-Producer Organization) based on natural farming has been set up in the state.

Pesticide use must be controlled

ECOLOGICAL ANGLE. It raises cultivation costs and impacts human, soil health. Paddy and cotton acreage should be reduced to curb pesticide use

A Narayanamoorthy

Considering the various deleterious impacts of pesticides, Punjab and Haryana governments banned 10 pesticides last month. But, despite being aware of the reasons for the ban, the Crop Care Federation of India (CCFI) has termed the imposition of ban as "trimming the feet to fit the shoes".

Why did the two State governments ban certain pesticides? Are Indian farmers using more pesticide in crop cultivation? Are there ways to reduce pesticides consumption in agriculture?

THE BEGINNINGS

The Green Revolution during the mid-60s brought substantial changes in the use of yield-increasing inputs such as HYV seeds, chemical fertilisers and pesticides. This significantly contributed to the production of foodgrains, oilseeds, cotton, horticulture crops, etc. Production of foodgrains alone increased from 52 million tonnes (mt) in 1951-52 to 309 mt in 2020-21. A big revolution has also taken place in the production of horticultural crops, which increased from 97 mt in 1991-92 to 331 mt in 2020-21.

The intensive agriculture practiced over the last five decades has also invited unwanted guests like pests and diseases into the agriculture. To control the pest ravages, farmers slowly started applying pesticides in the 1960s and 1970s to protect crops. But, the post-1970s witnessed a substantial increase in the use of pesticides due to a variety of reasons. For instance, the total use of pesticides was only 14,630 tonnes in 1965-66, but it increased to 62,180 tonnes in 2017-18. That is, per hectare consumption of pesticides has increased close to four times, from 94 grams to 315 grams during this period. Unlike modern seeds and fertilisers, the increased use of pesticides in crops attracted a lot of criticism primarily from the environmentalists because it reduces biodiversity, aggravates the problems of soil, water and air pollution.

INCREASE IN CULTIVATION COSTS

Studies have reported that the increased use of certain pesticides has created irreparable health problems for people. Therefore, the government has banned the production and consumption of certain pesticides at different time periods based on the findings of the research studies and the recommendations of the Committees.

Studies underline that the increased use of modern pesticides has affected farm workers' health in the rice-growing regions in Tamil Nadu and Kerala.

To reduce the application of modern pesticides, the Integrated Pest Management (IPM) programme was introduced in 1992 which combines the use of biological, cultural and chemical practices to control insect pests in agricultural production. Increased emphasis has also been given to developing pest and disease-resistant varieties to reduce the use of synthetic pesticides. Have these interventions helped reduce the consumption of pesticides in agriculture?

The introduction of new synthetic pesticides has also substantially increased the cost of cultivation in different crops over time. As per the cost of cultivation survey data published by CACP, for paddy in Punjab, the per hectare cost of pesticides application has increased from ₹262 in 1990-91 to ₹5,624 in 2019-20, while the same increased from ₹154 to ₹4,278 in Andhra Pradesh.

Similarly, cotton crop's cultivation cost increased from ₹680 to ₹5,082 in Gujarat and from ₹757 to ₹7,360 in Andhra Pradesh. A similar increase is also observed in most States in these two crops. Since cotton crop is the largest consumer of pesticides in India, genetically modified Bt cotton seed was introduced in 2002-03 specifically to reduce its consumption. With only 5 per cent of gross cropped area, cotton reportedly consumes 36-50 per cent of total pesticides. But unfortunately, after the introduction of Bt variety of cotton, its area has increased considerably resulting in increased total consumption of pesticides. Paddy is another important crop after cotton in terms of consumption of pesticides, where too the cropped area has increased by about 10 million hectares after the 1960s.

The increased use of pesticides is criticised by environmentalists because it reduces biodiversity, aggravates soil, water pollution.

FUTURE FOCUS

A blanket ban on pesticides will indeed hurt the production of crops. The Father of the Green Revolution and Nobel Laureate, Norman Borlaug underlined in the 1970s that a complete ban on pesticide would result in a 50 per cent reduction in the world's production of crops, which may increase food prices 4-5 times.

Some estimates suggest that the potential production losses in the absence of pesticide application would have been at around 80 per cent for cotton worldwide. But, the recent ban on 10 pesticides by Punjab and Haryana was not done arbitrarily. This was reportedly done on the request of APEDA (Agriculture and Processed Food Products Export Development Authority) and a representation from Punjab's state Rice Millers and Exporters Association to meet the Maximum Residue Levels (MRLs) set by the EU for exporting rice.

An increase in pesticide consumption will increase the burden on farmers and damage the environment. With the increased use of toxic pesticides, snakes, snails, earthworms, etc., are fast vanishing from the farms, all of which are essential part of the farming ecosystem. While every effort is needed to control the consumption of pesticides without harming productivity, concerted efforts are needed to increase the area under organic farming and zero-budget farming, both of which do not require pesticides. By reducing the area under paddy and cotton, the consumption of pesticides can also be reduced considerably as these two crops together consume about 65 per cent of pesticides in India.

Attractive advertisements on pesticides influencing the farmers to increase their use should be banned. Given the changing environment, the pesticide manufacturers should also change their production system from toxic to environment-friendly pesticides.

The writer is a former full-time Member (Official), CACP. Views are personal

'India will be pillar of global economic revival'

It exhibited steady growth, shown resilience during pandemic and emerged as fastest-growing country among large economies of the world: Goyal at Bengal Chamber's AGM

Women farmers to market certified natural produce

TRIBUNE NEWS SERVICE

SHIMLA, AUGUST 31

Women farmers are set to become the 'change makers' in the agro-marketing field with the registration of the first all-women Farmer Producer Company (FPC) for collective marketing of certified chemical-free natural produce in the state.

The FPC comprises farmers from three panchayats namely Jabal Jamrot, Haripur and Deothi in Solan district. These women first switched from chemical based farming to non-chemical, low cost and climate resilient natural farming technique few years back after getting training under the Prakritik Kheti Khushhal Kisan Yojana (PK3Y). They are now heading towards becoming entrepreneurs.

The Solan Natural Farmer Producer Company has ten primary shareholders (five women farmers on the board of directors and five others as promoters). 60 more women farmers are ready to be part of this FPC for marketing of natural produce, including a range of vegetables, fruits and milk products.

"Chemical based farming had led to increasing expenditures, stagnant production and many diseases. Shifting to natural farming techniques was the first important step to save our agriculture," said Radha Devi (41), Chairman, Solan Natural Farmer Producer Company.

All-women Farmer Producer Company registered

She said coming together on one platform for collective marketing of their produce was the second step that will help them to get better prices.

Seema, the Pradhan of Jabal Jhamlot Panchayat, who is also on the Board of Directors of the FPC said that if they do the marketing collectively through an FPC, they can find out specific buyers and negotiate prices.

Rain damage may limit Haryana's basmati crop

Prabhudatta Mishra
New Delhi

Haryana, the top basmati grower, has received normal rainfall so far this season, and covered in September the deficit caused by the 7 per cent lower-than-average rain in the first three months of monsoon starting June 1. However, heavy rainfall in some of the key basmati growing areas, where harvesting has just started, is threatening to bring down the yield or damage the crop in the field.

According to India Meteorological Department (IMD) data, three Haryana districts — Karnal, Panipat and Sonipat— have received 91.7 mm, 41.7 mm and 19.8 mm excess (over the normal) rainfall, respectively between September 1 and 24. While another district Jind has received 48 mm less-than-normal rains so far this month. These four districts are estimated to account for 45 per cent of the State's total basmati area of 6.55 lakh hectares (lh), according to a study commissioned by the government's agri-export promotion arm Apeda.

The four affected districts have around 45% share in the State's total basmati area of 6.55 lakh hectares

YIELD DOWN BY 0.3 MT

According to farmers, in the three districts that received heavy rainfall in the past few days, damage is minimal so far and limited to select varieties of basmati transplanted in the second half of June. With an average yield of 5 tonnes/hectare, basmati production could have been 3.3 million tonnes (mt) in Haryana this year. However, the rain damage will limit the output to 3 mt.

"Only 5-7 per cent of crop has been affected in our village. Most harvesting will start in mid-October as transplanting was done in July, and hopefully rain will stop now," said Suresh Antil of Deepalpur village in Sonipat district.

"The impact of climate change is clearly visible. The wide variance of rainfall within a distance of 80 kilometre in the State this time has closely followed what happened in March-April when a heatwave shrivelled wheat grain just before the harvest," said RS Rana, who turned to agriculture after leaving a private sector job. "It is time researchers think of delaying rainfall particularly during harvesting, as they are already successful in inducing artificial rainfall through cloud seeding," he added.

Vijay Setia, a former president of the All-India Rice Exporters Association, demanded that the Haryana government immediately allow farmers to bring their crop directly to rice mills (instead of *mandis*) as the units have drying facilities for paddy, and purchases can be made without commission agents.

With an all-time high production, mushroom emerging as a new cash crop in J&K

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SRINAGAR: Mushroom production has registered a substantial increase in Jammu and Kashmir and it is expected to catch up fast with the demand for the food product in the union territory.

Officials of the agriculture department said that mushroom production is at an all-time high across J&K in the past two years to the extent that it is emerging as a new cash crop in the union territory.

"We are one of the biggest consumers of mushrooms in Kashmir but all of this would come from outside. Now for the past two years, the production has increased multifold. From an earlier single crop at some 40-50 units, the production has increased to the extent that we produce two major crops in a year at some 1,500 units," said Choudhary Mohammad Iqbal, director, agriculture, Kashmir.

He said that they were attempting to increase the livelihood of the youth by making them 'mushroom entrepreneurs'. "Mushrooms are produced everywhere but the quality of the mushroom we grow in Kashmir matters because the temperature here is ideal for its growth," he said.

The government says that under the Rashtriya Krishi Vikas Yojna (National Agriculture Development Programme) mushroom cultivation is a focus area in J&K and the growers are provided with quality seeds and trained in scientific cultivation techniques. The administration's 50% subsidy and technical knowledge are making cultivation profitable for growers.

Mostly three types of mushrooms are grown in the union territory which includes button, milky and dingri, which are grown either naturally or under a controlled atmosphere.

Dr Shabir-ur-rehman, who is a researcher at Integrated Mushroom Centre, Lal Mandi in Kashmir, said that they have almost doubled the number of input bags to 85,000 filled with spawn(seeds) and compost to be provided to the cultivators in 2021-22 than 40,000 in 2019-20.

"In a market survey, we came to know that the Valley would consume some 15 to 21 tonnes of mushrooms every day of which just 15% would be produced locally. But for the past two years, the production is increasing fast and we are able to produce 40-50% of what we consume," he said.

In the Jammu division, the story is similar with the consumption of mushrooms multiplying owing to the huge number of pilgrims that visit the region. "The production is showing an increasing trend with new growers adding up using high-end technology and high-tech structures. Mushrooms here are grown under a controlled atmosphere as well as under a natural system as they are temperature and humidity dependent," said joint director, Apiculture and Mushroom Development, RK Hitashi. "It is a cash crop and multiplies the income of growers. We are also providing a 50% subsidy to cultivators," he said.

Mushroom production has registered a substantial increase in Jammu and Kashmir. HT PHOTO

Symposium held on mainstreaming of agri higher edu in pvt varsities

HANS NEWS SERVICE
RAJENDRANAGAR

TO address various issues pertaining to quality higher agricultural education, governance and mainstreaming of private education, the ICAR-National Academy of Agricultural Research Management, Hyderabad under the aegis of National Agricultural Higher Education Project (NAHEP) organised a "National Symposium" themed 'Mainstreaming of Agricultural Higher Education in Private Universities of India' on Thursday at NAARM Rajendranagar.

Experts say that role of agricultural education is to prepare students to face real life challenges

During the colloquium, deliberations were made over four major themes that include- equal opportunity in education and employment, quality assurance in agricultural education, enabling an environment for quality education and accreditation in the context of new education policy.

While addressing the symposium as Chief Guest, Dr R C Agrawal, Deputy Director General, ICAR and National Director (NAHEP), New Delhi, said, "It was mandated to fulfill human demand of agricultural graduates by 2030 for which there should be sharing of resources between public-private through MoUs and ICAR will play a role of facilitator to bridge the gap." He also urged teachers to work to ensure that the horizon of thinking, learning and knowledge-base should be enhanced.

"There are many challenges in increasing the number of students, providing accommodation and resources. Hope that we can come with a solution through public-private partnerships. As such there are plans to increase the number of current diploma courses and vocational courses in agricultural education," he added.

Prof Raghuvir Singh, Vice Chancellor, Teerthankar Mahaveer University, Moradabad, Uttar Pradesh, said that the role of agricultural education is to prepare students to face real life challenges. "The primary task of teachers is to ratchet-up the students interest in the classroom. The philosophy should be to ensure students involvement in learning and encouraging the students' creativity, he added.

Kunwar Shekhar Vijendra, Chancellor, Shobhit University, Uttar Pradesh, shed a light over the primary purpose of education and classified it into three segments such as creation of knowledge, integration of knowledge and application of knowledge. "Creation of knowledge happens when we join hands and resources. The purpose can be fulfilled when we join hands and make resources available to each other. Currently the optimum utilisation of resources is only 30 per cent in institutions, by sharing the resources we can increase the efficiency of resources," he explained.

Natural farming spreads to 63 mandals in Anantapur

- The government has involved women groups to popularise the movement and to influence men towards it
- About 300 villages under 30 clusters benefitting 1 lakh farmers have been declared 'natural farming' villages

RAVI P BENJAMIN
ANANTAPUR-SATHYA SAI DIST

Farmers in Puttaparthi excited about natural farming results.

NATURAL farming in the undivided district has spread to all the 63 mandals in more than a lakh acres and is drawing the attention of even countries abroad. The AP government has involved women groups to popularise the movement and to influence men towards the movement.

About 300 villages under 30 clusters benefitting 1 lakh farmers have been declared 'natural farming' villages by the department of Agriculture in the district.

In each cluster, 10 villages have adopted natural farming methods and techniques and has completely done away with the use of chemicals and fertilizers.

District Project Manager V Lakshma Naik told The Hans India that Jeevamrutham, an amalgamation of animal dung, urine and botanical waste is being used by farmers replacing chemicals and pesticides to a great extent. Farmers, who have seen the benefits of natural organic farming, are moving away from highly chemicalised farming to organic farming by using only animal dung and agriculture waste as manure and using 'Jeevamrutham.'

Farmers in the natural farming zone are raising horticulture crops, vegetable, mulberry, groundnut and even millets adopting natural farming techniques. The farmers are educated on the benefits of natural farming and those who have taken to organic fertilizers are themselves spreading the good news associated with it. He stated organic farming reduces cultivation costs, boosts soil health and increases the yield of crop apart from contributing to human health.

Farmers in Puttaparthi mandal are excited that organic farming has negated all the evils of chemicals and pesticides. Kulayappa, a farmer of Puttaparthi mandal, says that organic farming is 80 per cent cheaper than fertilizer farming. Obulesh says that he spent a mere Rs 25,000 on organic inputs and his profit turned out to be Rs 3.50 lakh on his 4-acre crop.

A 3-member committee appointed by the department of Agriculture is engaged in spreading the movement motivating the farmers into it.

Adopt TS agri policy: Farmers' consortium

Meets on agriculture-centric agenda for non-BJP national alliance

STATE BUREAU
Hyderabad

Farmers led by the Consortium of Indian Farmers Associations (CIFA) on Tuesday demanded the Centre to implement farmer-friendly initiatives to ensure remunerative returns to farmers. They said though parties like TRS were focusing on farming to increase production, the high-cost inputs and labour due to the lack of Central policy, was making agriculture non-remunerative.

CIFA organised a seminar to prepare an 'Agriculture-centric agenda for adoption by the non-BJP national alliance' at Film Nagar Recreation Centre here on Tuesday. The seminar was part of a series of discussions to be held across India involving non-BJP especially the regional political parties, experts and civic organisations, to revise policies and promote sustainable agriculture at national level and become globally competitive.

Addressing the meeting, JDU chief general secretary and former MP KC Tyagi emphasised the need for farmer-centric programmes to achieve sustainable agriculture and make agriculture remunerative for farmers. He said the Centre had failed to address the farmers issues and it was important to ensure that all political parties make their stand clear in their election manifestoes on these issues.

Speakers at the meeting lauded Telangana's unique agriculture development model initiated by Chief Minister K Chandrashekhar Rao that has led to huge production and increased land value making every farmer a millionaire. They strongly felt that Telangana model can be enlarged for adoption. The meeting observed that regional parties like TRS, DMK, YSRC and JDU among others have focused on farming.

Agri min takes stock of steps to curb farm fires

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NEW DELHI: Union agriculture minister Narendra Singh Tomar on Wednesday, in a meeting with officials from Punjab, Haryana, Uttar Pradesh and Delhi, reviewed steps to curb paddy-residue burning, which causes a deadly annual spell of smog over northern India every winter, urging the four food-bowl states to fully utilise funds under a federal scheme meant for stubble management. Tomar proposed a joint Centre-state long-term plan to achieve zero-stubble burning within a commonly agreed time-frame, an official said.

AIR WE BREATHE

At the meeting, the agriculture ministry and officials evaluated spending under the "promotion of agricultural mechanisation for in-situ management of crop residue", a scheme that provides funds for subsidised purchase of farm equipment that eliminates the need to burn remnants of paddy harvests.

Farmers in these states harvest summer-sown paddy between October and November with machines known as combine harvesters. These giant reapers efficiently cut the grainy part of paddy crops, leaving behind stalks or stubble. Cultivators clear these residues for the next crop by setting them on fire because hiring additional equipment is uneconomical. But stubble fires in the upwind agrarian states are a major driving force behind the annual winter air quality emergency in the Capital, which sends pollution levels into hazardous levels.

Under the scheme to subsidise stubble-clearing farm equipment, the Centre has allotted ₹700 crore for FY2022-23. Of this, ₹600 crore was released to the four states and ₹300 crore are yet to be spent, Tomar told representatives of the states.

The Centre has declined a proposal by Punjab and Delhi, ruled by the Aam Aadmi Party (AAP), to give ₹2,500 per acre incentive to farmers to prevent stubble burning. HT had reported on Sept 10.

The Centre asked the states to ramp up efforts, such as taking farmers to locations where the Indian Council of Agricultural Research (ICAR) had regular demonstration in the use of Pusa Decomposer, an organic solution that dissolves paddy stalks.

So far, the Centre has released ₹240 crore to Punjab, ₹191.53 crore to Haryana, ₹154.29 crore to UP and ₹14.18 crore for Delhi as the first instalment under the scheme.

Haryana shared its residue-management plan, an official from the state said. The state told the Centre instances of stubble burning will be lower this year. The state gives ₹1,000 per acre incentive to farmers for "ex-situ management", or disposing stalks outside the farm. This year, the state will give ₹1,000 per acre incentive for on-site management.

An officer from Punjab said, "We conveyed to the Centre that all efforts would be made to stop farm fires."

From Uttar Pradesh, Neeraj Srivastav, the state's joint director, agriculture (engineering), said, "We also told the Centre that efforts are being made to encourage farmers to use bio-decomposers to convert crops residues into organic manure."

Officials from Delhi did not respond for comment.

Recent rains to expand paddy sowing: Ministry

SANDIP DAS
New Delhi, September 25

RECENT RAINFALL OVER Karnataka, Telangana, Tamil Nadu and Odisha could support expansion of paddy sowing area and reduce the deficit in area under the key kharif crop, the Union agriculture ministry has stated.

"Transplanting of paddy is still going on in Karnataka, Telangana, Tamil Nadu and Odisha and some more area coverage under paddy is expected," according to a statement.

As per the latest data released by the agriculture ministry, overall paddy sowing area in the country was reported at 40.1 million hectare (mh), down 5.6% from the year-ago period.

Harvesting of paddy in Haryana and Punjab is expected to commence in the first week of October. Decline paddy sowing is mainly because of deficient rainfall received in the key rice growing states – Uttar Pradesh, Bihar, Jharkhand and West Bengal. Area under paddy in West Bengal, the largest rice-producing state, was down by 8.6% on year.

India's rice production in the current kharif season for the 2022-23 crop year (July-June) is expected to decline by around 6% to 104.99 million tonne (mt) against 111.76 mt in 2021-22, according to the first advance estimate of food-grain production released by agriculture ministry last week.

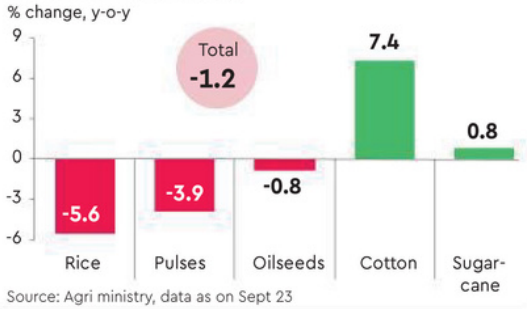
The kharif season contributes more than 85% of the total rice production in the country. In the 2021-22 crop year, the country produced a record 130.29 mt of rice. Overall production of kharif food grain production — rice, pulses and coarse cereals in the 2022-23 crop year is estimated to decline by more than 6% to 149.92 mt against 156.04 mt in previous year crop year.

Overall kharif crops – paddy, pulses, oilseeds, cotton and nutri-cereals etc have been sown in 109.7 mh as till September 23 which was 1.2% less than against 111.1 mh reported a year ago.

Officials said that the kharif sowing activities have been largely completed across the country. However, the agriculture ministry said data on kharif sowing would be captured till September 30. The India Meteorological Department (IMD) last week had announced the commencement of withdrawal of the south-west monsoon signalling the end of its four-month (June-September) journey. The cumulative monsoon rainfall received in all the four regions during June 1-September 25 was 909 mm, 7% more than the long-period average (LPA) of 848 mm for the same period. However, the distribution of rainfall has been rather uneven. The rainfall deficiency in the east and north-east so far has been 17% and mainly because rainfall received in the last couple of days, the north-west region's deficiency in rainfall has been bridged, the region so far has received 1% more rainfall than LPA.

The central India and the south peninsula have received 19% and 24% more rainfall than the LPA.

Kharif crop sowing



Source: Agri ministry, data as on Sept 23

Farm income doubled since 2014: UP CM

EXPRESS NEWS SERVICE
LUCKNOW, SEPTEMBER 25

UTTAR PRADESH Chief Minister Yogi Adityanath on Sunday claimed that incomes of farmers have more than doubled since 2014 after Prime Minister Narendra Modi set the target for his government to achieve a two-fold rise in farm incomes by 2022. The CM added that despite their dependence on nature, the farmers of UP have proved their potential by producing record quantities of foodgrain and the welfare programmes rolled out by the UP government and Centre have helped in increasing incomes of farmers.

The chief minister was speaking during a programme organised to distribute high-yield seed kits to mark the birth anniversary of Bharatiya Janata Party (BJP) ideologue Deen Dayal Upadhyay in Lucknow.

UP Chief Minister Yogi Adityanath pays tribute to Deendayal Upadhyaya on his birth anniversary, in Lucknow on Sunday. *PTI*

Talking about how the state's farmers are aware about the welfare schemes launched for them, Adityanath said the government is running campaigns to spread word about them. He directed agriculture department officials to organise camps in every district and publicise the government schemes for farmers.

Along with seed kits, the chief minister also distributed 'Meri Policy-Mera Haath' certificates to the beneficiaries of Pradhan Mantri Fasal Bima Yojana and approval letters for setting up solar irrigation pump to PM Kusum Yojana beneficiaries. Besides, he flagged off 21 tractors for agricultural fields.

He added that BJP's "double engine government" stands with "annadata" farmers. Adityanath also said that when the world was reeling under the impact of the Covid-19 pandemic, the agricultural sector stood firm. "There were some concerns related to standing crops of wheat, but I assured farmers that they would be getting combine machines. Officials were directed to set up a helpdesk and provide assistance to farmers for harvesting crops and transporting them to purchasing centres. During the pandemic, sugar mills in the country and world were closed. However, all 119 sugar mills in the state were operational. Trade stopped, traffic was disrupted, but one community that continued to work was that of farmers. They provided ration to everyone without discrimination. It was due to their hard work that no one died of starvation during Covid," he added.

High costs, falling returns hurt Bt cotton farmers

Decreasing yields and corporate seed monopoly have tipped the scales against genetically-modified cotton. Is Bt maize set to take the same course?

CHIRANJEEVI KULKARNI
HAVERI & DHARWAD, DHNS

Two decades ago, when Bt cotton was introduced, farmers were enticed by the promise of high yield, high market prices and insulation from the devastating pink bollworm. "But over the years, increasing input costs and crop failures have outnumbered the strokes of luck," says farmer Channabasappa Masuti. He stopped growing the genetically-modified cotton variety a decade ago and now grows local varieties.

Sitting in his 200-year-old house at Uppin Betageri village in Dharwad district, Masuti said, "We have sown cotton for decades. I remember cotton cultivation reaching its peak between 1995 and 2005. Of this period, the last two years saw rampant cultivation of Bt cotton."

The Bt seed technology involves genetically modifying the crop by inserting genes of a bacterium, *Bacillus thuringiensis* (Bt), into the plant cell's chromosome in order to produce a toxin that kills pests. Bt cotton was officially introduced to India's fields in 2002. By 2013, 95% of cotton grown in the country was of this variety.

While some credit the genetically-modified (GM) variety of cotton for greater yields, farmers and researchers continue to decry this to be a myth. "What Bt has done to our land and our environment is unknown. What it has done to farmers is out in the open," says Masuti.

Currently, 93% of cotton grown in India is genetically modified. In picture, workers harvest cotton in a field on the outskirts of Ahmedabad. REUTERS FILE PHOTO

INSIGHT

Despite the many controversies and farmers' concerns, the Union and state governments recently approved confined field trials of Bt cotton and Bt maize. This has kickstarted a debate once again.

While the latest cotton trial is the third iteration of the technology in Karnataka, the clearance of Bt maize for trial has surprised many.

The concern is evident in the villages of Haveri that were once the test beds for Bt cotton. Yamunesh Agasanahalli, a farmer, has experienced the cotton boom, and has also seen the crop hit rock bottom.

"Except for the few hundred rupees spent on seeds and a marginal amount on fertilisers, we did not spend on insecticides and pesticides in the first two years. I remember the yield in my field going up from 3.5-4 quintal per acre to 20 quintal per acre. Today, the average yield in the village is 8 quintal per acre, while input costs have grown over ten times," he says.

Guddappa Hulmani, another Haveri farmer, splits a green cotton boll in his field to show the pink bollworm eating away the white clumps inside. "I have sprayed pesticides religiously. Even then, pests have destroyed entire squares (base of the boll). I will be lucky if 50% of the bolls survive to bloom this year," he says.

▸ Bt cotton woes, Page 4

Pests grow resistant to Bt toxin

Bt cotton woes, from Page 1

In addition to pest resistance, the Bt cotton and maize seeds promise tolerance to herbicides like the chemical glyphosate, used to kill weeds. This has unleashed a new set of worries among activists and environmentalists.

"When using herbicides, farmers keep having to use larger amounts of chemicals as plants develop resistance. Moreover, herbicides kill the natural and benign organisms in the soil, requiring us to invest more in fertilisers," Yamunesh adds.

Myth of Bt success

The false claims of Bt cotton success have been busted in studies by experts like Keshav R Kranthi, former head of the Central Institute of Cotton Research. Kranthi's empirical study attributes the rise in cotton yield to the over twofold increase in fertiliser use between 2006 to 2013, as well as the growth of irrigation infrastructure and high use of insecticides.

"Countrywide yields have not improved in 13 years, and Indian cotton farmers today are spending more per hectare on insecticide than they did before Bt began to spread," Kranti concludes.

"Often, a Bt farmer's debt journey starts from buying seed and gets steeper as the pesticide, fertiliser and labour costs add up," Yamunesh adds.

The costs and uncertainties are so high, that a study by the Institute of Social and Economic Change found that one-third of the 321 Karnataka farmers who killed themselves in 2014 grew either cotton or tobacco. The researchers found that cotton cultivators of Belagavi and Haveri were not able to cross even 45% of the potential yield.

"Farmers have nothing to gain from Bt cotton," says Andrew Paul Gutierrez, Professor Emeritus, University of California, Berkeley, whose work on the link between the cotton crisis and farmers suicides in India has acquired landmark status.

"The cost of hybrid Bt cotton seed is so high that it forces farmers into a low-density, long-season system that brings with it the buildup of late-season pests and low yield. Now, the seed manufacturers want to add herbicide tolerance, adding further to seed costs and hoping to sell herbicides as well," he adds.

In 2014, the state government banned Bt seeds sold by seed company Mahyco, after an inquiry found that over 54,000 farmers in seven districts suffered severe losses. Hybrid and GM cotton seeds have since then been sold by other private entities.

Desi varieties

Yamunesh notes that while desi seed varieties do not produce a great yield either, they do not lead farmers into crippling debt. "The seeds are available at Rs 100 and can be saved. Sahana and Jayadhar are popular desi cotton varieties known for yielding 350 to 400 kg per acre. Cultivating desi cotton and adopting intercropping or crop rotation is the best practice for farmers to avoid a crisis," he adds.

Back in Uppin Betageri, Masuti says it has been a decade since he embraced desi cotton. "I go for natural farming. I get an yield of around 350 kg per acre. Though I do not invest much in insecticides, I cannot escape the fertiliser costs. The only solace is that I have an assured buyer with a stable price of about Rs 8,000 per quintal," Masuti says.

Another advantage of local cotton varieties is that the seeds can be saved, unlike Bt cotton. "I have not bought seeds for the past 19 years," says Mallikarjun Rotti, a farmer in Hiregunjal near Kundagol.

However, unlike Masuti and Rotti, whose families own 40 and 20 acres respectively, farmers with small and marginal land holdings are not in a position to resist the Bt lure.

Bhagavanth Kusubi, whose family has five acres in the same village, said he diversifies crops but reserves a two-acre plot for cotton every year. "Cotton prices have gone up. Other crops are not bringing similar returns," Kusubi says.

Walking to the plot where the rich green leaves of Bt Cotton grow thick in the dry black soil, Kusubi shows the underside of a leaf, where tiny green and black insects thrive. "It has been only 15 days since I paid for pesticide spraying. Each of the three bottles cost me Rs 1,000, and the labour charges came up to Rs 1,200. Now, I have to pay to kill these things all over again," he says.

Seed monopoly

Experts at local, national and international levels have conducted multiple studies to show that Bt seeds were helping multinational companies at the cost of farmers.

Aruna Rodriguez, an activist, notes that the Union government itself acknowledged before the Delhi High Court (WP(C) 12069/2015) that Mahyco-Monsanto's "near monopoly" on Bt cotton seeds has led to market failure, as there are few alternative technology providers.

"A farmer succumbs to the pressure to use the best seed available in the market even when he might not have the means to cultivate such a crop. Consequently, in case of a crop failure, the farmers incur enormous debts in view of the loans taken to cultivate such Bt cotton crop...which in turn has caused a rise in farmers' suicides across various cotton-growing states," the government said.

State Agriculture Minister B C Patil did not respond to requests for a comment. Central Institute For Cotton Research Director Y G Prasad could not be reached.

At the state committee meeting headed by the chief secretary last year, an expert member raised these points to oppose the proposed trial of GM crops.

"At least two members, including an expert member, opposed both the trials. One of them explained how hybrid varieties are more effective and sustainable than GM seeds by giving the example of brinjal. Developing a hybrid brinjal by taking three varieties — one known for size, a second for pest resistance and another for taste — has given more benefits than those offered by Bt brinjal. More importantly, farmers do not have to be dependent on MNCs," the member tells *DH*.

Another expert said even the confined trials would affect the surrounding fields of the same crop.

"It is well known that cross pollination has destroyed local varieties. But the committee overruled the objections and took a unilateral decision to approve the trials," a source said.

The approval of the Bt maize variety with herbicide tolerance has worried activists. "Genetically-modified foods are unsafe, and there is scientific evidence to that effect. GM crop trials themselves are risky, and it was in Karnataka that we had produced solid evidence of biosafety violations," Rodriguez says.

When it comes to GM crops, India has a dubious record of poor regulatory mechanisms in all stages, right from the scientific evaluation of a seed to the failure to monitor its use.

"It is a path to perdition," says a scientist who has worked extensively on plant genetics for three decades. "We are still reeling from the invasion of pests which have developed a resistance to the Bt toxin. Why bring such a technology to maize as well? Allowing Bt maize will also open the gate for other food crops (to be genetically modified)," he says.

The vagaries of cotton cultivation

37% of the total area under cotton cultivation is in India.

22% of the world's cotton is produced in India.

60 million Indians rely upon cotton cultivation, marketing, processing and exports for their livelihood.

About **93%** of cotton currently grown in India is Bt cotton.

Pink bollworm and American bollworm are the predominant pests that attack cotton

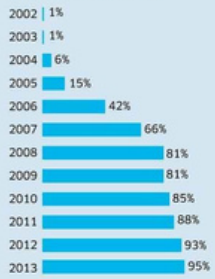
With Bt cotton, bollworm pesticide use fell by 97%, but insecticides for sucking pests increased by 154%.

Karnataka, Maharashtra, Gujarat, Telangana and **Andhra Pradesh** account for more than three-fourth of India's cotton production.

Cotton varieties

1. **Natural and improved varieties:** Usually native seeds with low disease burden, low input cost but also low yield
2. **Hybrid:** Created with crossing two different varieties of the same plant promise of high yield
3. **Genetically modified (GM):** Created with insertion of a part gene of soil bacterium *Bacillus thuringiensis* (Bt).

In 2013, 95% of cotton cultivated in India was of the Bt variety



Seed sovereignty

The United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas, asserted farmers rights to 'seed sovereignty'. The declaration stipulates that farmers have the right to participate in making decisions about conservation and cultivation of plant genetic resources, as well as the right to maintain, control, protect and develop their own seeds and traditional knowledge.

What Bt cotton does

The insertion of Bt genes into the plant cell enables the cotton plant to produce a toxin to kill the American bollworm and pink bollworm.

Among various pests attacking cotton harvests, the American bollworm alone caused yield reductions upto 70%

In order to address this, the genetically modified variety or Bt cotton was first adopted in India in 2002.

Cotton production rose from 14 million bales in the pre-Bt year of 2001-02 to 39 million bales in 2014-15, a rise of almost 180%.

But at what cost?

- Bt cotton cannot fight an entire class of insects.
- Pink bollworm and American bollworm have developed resistance to the toxin.
- Bt cotton seeds are more expensive than local varieties.
- Bt Cotton doesn't allow seed-saving, making farmers dependent on corporations for seeds.
- Farmers' dependence on the private sector results in unsustainable debt, which in turn leads to farm suicides.
- While Bt cotton led to an initial reduction, by 2012, insecticide use was at pre-2002 levels.
- High input costs on pesticides, fertilisers also lead to increase in debt.
- Diffusion of illegal Bt hybrids bring the threat of environmental toxicity.
- The monopoly of GM varieties leads to the loss of biodiversity.

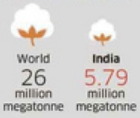
Myth of Bt

- Bt cotton has been wrongly credited with tripling India's cotton production between 2005 and 2014.
- Experts have pointed out that it is the hybrid cotton, regardless of Bt genes, which boosted the yield.
- Both Bt and hybrid cotton require high amounts of pesticides and fertilisers with equal input costs and similar yields.
- Empirical studies have shown that Bt cotton yield has been dropping steadily over the years.

The yield of Bt cotton saw a decline of 19% in 2018, after years of increase

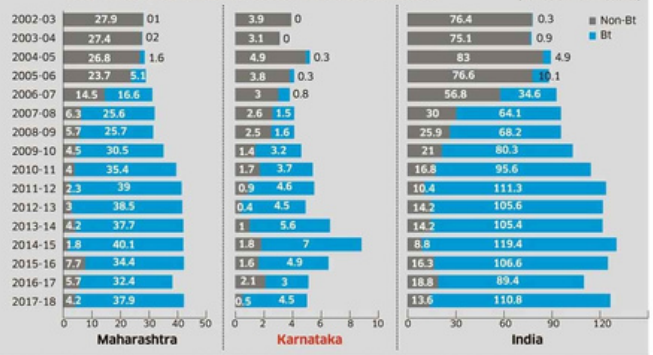
Area under cotton cultivation (2021)

Global production of cotton (2021)



Year-wise area under Bt cotton in selected states

(Numbers in lakh hectares)



Source: Cotton Corporation of India, Ministry of Agriculture & Farmers Welfare, Government of India Status Paper of Indian Cotton of January 2017, Heinrich Böll Foundation study, Indian Council of Agricultural Research, National Academy of Agricultural Research Management

COMPILED BY VARSHA GOWDA & SWEEKRUTHI K
DH GRAPHIC: SAGAR M S

The Chinese 'intrusion'

CHIRANJEEVI KULKARNI
HAVERI & DHARWAD, DHNS

In early 2011, the Genetic Engineering Appraisal Committee (GEAC) allowed the marketing of an 'indigenous' Bt seed developed by the University of Agricultural Sciences, Dharwad, which was later silently withdrawn without explanation allegedly to avoid a patent clash with Monsanto.

Such instances are not uncommon, with activists alleging the genetic modification (GM) technology has made inroads because the governments have been favouring big companies.

A second desi Bt cotton developed by Manjula Maralappanavar, a senior scientist at the University of Agricultural Sciences, Dharwad, was put in cold storage for more than five years by the authorities. At least two scientists at the university told *DH* that every effort was made to sabotage Manjula's work, which would have reduced the cost of the Bt seeds.

"I appealed to everybody, from the authorities in the varsity to the prime minister's office. Finally, the crop science division of ICAR conducted a PCR test of my seeds and gave a report, whose conclusion shocked me to the core," Manjula told *DH*.

DH accessed the ICAR report which termed Manjula's Bt cotton as "100% Chinese event", essentially declaring that her seeds are not original. An 'event' is the successful incorporation of the Bt transgene into the plant cell. "No seed with the Chinese event has been introduced in India till now. In fact, the specific Chinese event has never been allowed in India even at the stage of biosafety checks or confined field trials," Manjula said.

Manjula said she has disputed the ICAR report. "I still have pure seeds and I will prove my technology. But shouldn't there be an investigation on how the Chinese event contaminated our seeds? Such contaminations pose a serious threat to the safety of all cotton seeds," she said.

Another scientist said the evaluation report is a bombshell. "The finding of a Chinese event shows that the government is no longer in control of the seeds being sown in the country. How can a Bt variant illegally enter the premises of a varsity," he asked.

The political connotations of a Chinese event seeping into the rural interior of Karnataka may have larger ramifications, but authorities are yet to get a grip on the havoc caused by the seeds which have got the government's stamp of approval.

No funds for rodenticides, farmers stare at crop loss

SAMEER SINGH
TRIBUNE NEWS SERVICE

BATHINDA, SEPTEMBER 23

The Agriculture Department has not provided rodenticides to the farmers in the past two years. As a result, the paddy planted through the DSR method, wheat and sugarcane crop has suffered substantial damage to due to the rodents (rats).

According to experts, rodents cause more damage to wheat and sugarcane as compared to the paddy crop (DSR technique).

Harwinder Pal of Goniana said, "As the department has not provided rodenticides, we have to kill rats manually post harvest. It's a time consuming task."

Farmers kill rodents with sticks in Bathinda. FILE PHOTO

WILL RESOLVE THE MATTER

"Earlier, we used to get funds for providing rodenticides to the farmers. We have not received any money in the past few years. We will try to resolve the issue on a priority basis.

Dilbagh Singh, CAO, BATHINDA

Another farmer from Talwandi said, "Last year, rats had caused substantial damage to my wheat crop and there were more than 15 to 20 burrows per acre. The department must take the rodent problem seriously and provide rodenticides."

Bathinda Chief Agriculture Officer Dilbagh Singh said they had not received funds from the state government to provide rodenticides to the farmers in the past couple of years.

Pritpal Singh of Lakhi Jungle village said, "Rats have damaged my paddy crop sown via DSR technique. Even the basmati crop, where water-level is less, has been damaged. We opted for the DSR technique on the recommendations of the government. The rodents make burrows under the stubble."

Dr Neena Singla of Punjab Agriculture University said, "Rats can damage five to seven per cent of the wheat crop and 15 to 20 per cent of the sugarcane crop. Rats are often found more in the fields adjoining roads, railway tracks, canals and forest areas. Apart from using rodenticides, farmers must go for burrow baiting when the fields are empty, remove excessive weed and use traps."

Dr Reddy's CSR wing holds agri meet

HYDERABAD

DR Reddy's Foundation, International Crop Research Institute for Semi-Arid Tropics (Icrisat), International Maize and Wheat Improvement Centre (CIMMYT) and ICAR-Central Research Institute for Dryland Agriculture (CRIDA) recently met at Icrisat in Hyderabad to discuss about "Regenerative Agriculture for Sustainable Ecosystem and Economy."

The event aimed at encouraging experts to have an open dialogue about their learning's, elaborate on adaptation strategies and explore meaningful collaboration. Dr Reddy's Foundation (DRF) was established in 1996 by Dr Kallam Anji Reddy, a scientist, entrepreneur and founder of Dr Reddy's Laboratories Limited.

Dr Reddy's Foundation said, the event detailed the need for scaling regenerative agriculture for food security and sustainable ecosystem. It also addressed the challenges of implementing regenerative agriculture especially by farmers with small and marginal land holdings. Agriculture scientists and practitioners discussed and shared methods, tools and technologies.

The delegates included Dr M L Jat, Global Research programme director, RFFS, Icrisat; Dr Vinod Kumar Singh, director, ICAR-CRIDA; Dr Rajbir Singh, director, ICAR - Atari), and Dr Mahesh Kumar Gathala, senior scientist, CIMMYT.

The Foundation further informed that the key takeaways of the roundtable included need for consensus building on implementation of regenerative agriculture for carbon credits, mapping opportunities for regenerative agriculture nationally and identifying new potential areas that can generate carbon credits.

The roundtable also discussed the development of package of practices, framework and management protocols suited for different cropping systems encouraging regenerative agriculture, building community of practice, implementing common measurement, reporting, and verification (MRV) and uniformity in MRV mechanisms and neutral platform to enable tangible carbon credits to farmers, the not-for-profit organisation said.

The development of a white paper was also spoken about – policy with clear timelines of realising carbon credits for farmers, evolving markets and demand for the improved quality of credits, strengthening of extension support system at national, State and regional level through whole farm analysis including livestock.

A first, dragon fruit processing plant sanctioned in Una

OUR CORRESPONDENT

UNA, SEPTEMBER 18

The state's first dragon fruit processing plant will be set up in Behad Vitthal village of Gagret subdivision in Una district.

The Horticulture Department has given the nod for the letter of intent given by Riva Sood, a woman entrepreneur. A sum of Rs 1.65 crore will be spent on the unit, while the promoter will get a 35-per cent subsidy on the overall cost.

As per a government press release, the cultivation of dragon fruit is being promoted in Una district and the provisions of MGNREGA have been detailed to provide benefit to farmers taking to the cultivation of the exotic fruit.

FRUIT COSTS ₹400 PER KG

- ₹1.65 crore will be spent on the unit, while the promoter will get a 35-per cent subsidy on the overall cost.
- The climate of Una district was suitable for the cultivation of dragon fruit
- The processing plant will provide jobs to 15 persons
- About 50 more will be able to earn their livelihood as supply chain links and in nursery rearing.
- Dragon fruit has a longer shelf life as compared to many other fruits and fetches ₹300 to 400 per kg.

Quoting Riva Sood, the press release said the climate of Una district was suitable for the cultivation of dragon fruit and many farmers had begun its cultivation. Consequently, the processing unit will help address the marketing issues of the farmers.

The unit will provide direct employment to 15 persons, while about 50 more will be able to earn their livelihood as supply chain links and in nursery rearing. The farmers will be able to diversify their agriculture pattern and earn more by switching to cultivation of exotic fruits. Dragon fruit has a longer shelf life as compared to many other fruits and fetches Rs 300 to 400 per kg.

Deputy Commissioner Raghav Sharma said 2,700 dragon fruit saplings have been planted in different parts of Una district through MGNREGA, of which 2,100 have been planted in Bangana subdivision, while the remaining 600 have been planted in Oel village of Gagret subdivision.

The DC said job card holders of MGNREGA, who are interested in the cultivation of dragon fruit, can contact their respective Block Development Officers or panchayat secretaries. He expressed hope that the processing unit will benefit the farmers.

'Uncertified processors, traders can't claim to resell organic product'

Subramani Ra Mancombu
Chennai

CRACKING THE WHIP. APEDA, the nodal authority, says its web-based traceability system ensures conformity with norms

India's National Programme for Organic Products (NPOP) has a unique feature that prevents the resale of products sold to uncertified processors or traders as organic, says Agriculture and Processed Food Products Export Development Authority (APEDA) Chairman M Angamuthu.

"In order to identify the handler involved at each stage of a transaction, it is mandatory that the buyer of an organic product also need to be certified.

"Adequate provisions have been made in the product flow of multi-ingredient products too, as several suppliers certified by multiple certification bodies may be involved in the supply chain," said the Chairman of APEDA, which is the nodal body for organic produce production, certification and exports. APEDA has developed a web-based traceability system that ensures the traceability and conformity to standards during production, processing and handling.

MANDATE

"The NPOP certification mandates that products which are exported from the country have been produced and handled by certified operators.

"This also includes farmers who are the producers. The certification programme permits certification of the supplier of products by any of the certification bodies accredited under NPOP," Angamuthu said. On the other hand, to carry out efficient verification and validation through onsite inspections and document verifications, only competent certification bodies have been provided accreditation, he said.

6.3L farmers involved in natural farming movement: Kakani

HANS NEWS SERVICE
ANANTAPUR

Agriculture Minister Kakani Govardhan Reddy looking at the agriculture implements at the RDT Ecology Centre in Anantapur on Thursday

- Agriculture Minister Kakani Govardhan Reddy says the state government is implementing a 4-pronged strategy and RBKs will be functioning as the natural farming promotion centres
- Reveals 15 countries implementing natural farming concept have sent their representatives to state to study its implementation by the government

AGRICULTURE Minister Kakani Govardhan Reddy has stated that the government is encouraging natural farming practices as it will benefit farmers in a large scale. Participating as the chief guest in the Groundswell International Global Conference organised at the Action Fraterna Ecology Centre premises here on Thursday, Govardhan Reddy said the state government has involved 6.30 lakh farmers in the natural farming movement spearheaded by it. The state government is implementing a 4-pronged strategy in this regard in adopting natural farming.

Stating the government is a pro-farmer and highly sensitive to farmers' requirements, he said Rythu Sadhikara Samstha, RBK and AP Community Managed Natural Farming have been established as a step in that direction. At the village level, RBKs will be functioning as the natural farming promotion centres. As many as 3,009 RBKs were functioning already as promotors of the concept and by 2023, 10,778 village secretariats will take on the role of natural farming promoting centers. Second strategy is to educate the farmers on natural farming through literature and audio-visual tools in laymen language, the benefits of natural farming. Third strategy is to promote the concept through farmers' organisations and progressive farmers and in the fourth phase the strategy is to involve 1.60 lakh women groups in the state to carry forward the natural farming movement. The idea is also to groom up atleast one farmer as an agriculture scientist in all the RBKs in the state. Besides, the establishment of Indo-German Global Academy for Agrology Research and Learning is another step in the direction by the state government.

The Agriculture minister revealed that 15 countries implementing natural farming concept have sent their representatives to AP state to study its implementation by the government, which the AP government deems it an honor and recognition to its efforts in the direction. The delegates studying the concept in the district and the observations to be made by them on the implementation of concept are invaluable. In future the world will look up to state government for inspiration, Goverdhan Reddy hoped.

He clarified that there will no question of government going back on free power to farmers. He assured payment of crop compensation to all farmers whose crop had been damaged. Rythu Sadikara Samstha executive vice-chairman Vijay Kumar also spoke hailing the several initiatives of the present government. He revealed that Mexico and Nepal governments were also working with the farmers agency on natural farming. District Collector Nagalakshmi Selvarajan and director of Action Fraterna Malla Reddy also spoke. ZP chairman Girija also participated.

FMC India aspires to achieve 15% market share in 5 years

N SHARATH CHOWDARY

The global agricultural sciences company expands product line to reach its revenue target of Rs 5,000 cr by 2026

FMC India is one of the leading crop protection companies, and the leading player in the insecticides segment. It offers a robust portfolio of solutions for crop protection, crop nutrition, and professional pest management. Its innovative crop nutrition solutions enable farmers, crop advisers and pest management professionals to address the challenges economically while protecting the environment.

The agricultural sciences company recently announced its portfolio expansion with five new products in support of farmers to achieve better yields through good quality produce and an improved soil profile. In an exclusive interview with *Bizz Buzz*, Ravi Annavarapu, President of FMC India, tells about the company's aim to achieve a revenue target of Rs 5,000 crore by 2026.

Ravi Annavarapu, President, FMC India

WHAT is the current market share of FMC India in the country? What are the targets ahead?

At present, FMC India has 10 per cent market share in the country and it aspires to achieve 15 per cent share in the domestic market over the next five years. The company also plans to grow its revenue at a compound annual growth rate (CAGR) of nearly 11 per cent to reach Rs 5,000-crore by FY 2026-27 from Rs 3,000 crore in FY 2021-22.

To accomplish this ambitious plan, it has announced portfolio expansion with five new products in support of farmers to achieve better yields through good quality produce and an improved soil profile. The newly launched products will be available for sale from this December.

How many products the company is currently offering and how many are in the pipeline?

At present, FMC India has 40 products for 30 crops across various categories including insecticides, herbicides, fungicides, crop nutrition, bio solutions and seed treatment. Recently, we have launched two insecticides – Corprima and Talstar Plus, a herbicide – Austral, and two crop nutrition products – Petra Biosolution and Cazbo micronutrient solution. We have 10 more proprietary products in the pipeline.

With the addition of the new range, the company is likely to offer nearly 50 products over the next five years. Our products are a mix of innovative solutions from our in-house research and development (R&D) team as well as imported technologies. We have around 80 agronomists in the R&D team who continuously work towards finding new solutions to the problems being faced by the farmers.

FMC India currently has 10% market share in the country and it aspires to achieve 15% share in the domestic market over the next 5 years. The company also plans to grow its revenue at a CAGR of nearly 11% to reach Rs 5,000-crore by FY 2026-27 from Rs 3,000 crore in FY 2021-22

Apart from them, we have more than 15 scientists who do global R&D for the company at India Innovation Center in Hyderabad. This is a global sister center for discovery R&D for our Stine Research Center in Delaware, US. FMC acquired this research center campus as part of its acquisition of a portion of DuPont's crop protection business in 2017.

FMC Corporation is the fifth largest agrochemical company across the world having presence in more than 50 countries. The global agricultural sciences firm has recorded revenue of over $5 billion during FY 2021-22. It invests 7 per cent of the annual sales on the R&D each year. It is powering one of the most productive crop protection pipelines in agriculture.

Bizz Talk

How do you ensure these products are safer for the environment as well?

FMC aims to deliver products that not only help to maintain a safe and secure food supply, but with minimal impact on the planet. We are committed to agro-economic growth in India, through innovative solutions to sustainably increase productivity and prosperity for farmers. We are also stewarding the responsible use of our products, while making a positive impact on local communities.

To reflect our commitment, FMC has set sustainability goals to challenge ourselves and to create a better world, in partnership with our customers, vendors, growers and the local community. We are proud of the progress we have made on our innovation, safety, community engagement and environmental goals over the years.

Sustainability is one of our core values. FMC, globally and in India has always been focused on its responsibility towards its internal and external stakeholders. We are building our sustainability efforts continuously through deeper engagement, awareness, and trust with communities we work with, within and outside the organisation.

About 80 per cent of our products are sustainable and our goal is to introduce 100 per cent safer solutions towards the environment. With 6,400 employees, including 800 scientists, at more than 100 sites worldwide, FMC is committed to discovering new herbicide, insecticide and fungicide active ingredients, product formulations and technologies that are consistently better for the planet.

Could you let us know about the company's manufacturing facilities in India?

FMC India is headquartered at Mumbai, with a regional office in Gurugram. We have two manufacturing sites – at Savli and Panoli, both in Gujarat. Savli site is a pesticide formulation unit along with packing division. After acquiring Cheminova India Ltd, its facilities in Panoli are being used to manufacture intermediates and active ingredients for crop protection.

We also have a discovery research group at India Innovation Center at Hyderabad, Telangana and a field evaluation station - SAFES at Vadodara, Gujarat. With employee strength of around 610, we are present across all regions in the country.

FMC Corporation, the global agricultural sciences firm, has recorded revenue of over $5 billion during FY 2021-22. It invests 7% of the annual sales on the R&D each year. It is powering one of the most productive crop protection pipelines in agriculture

How FMC India is promoting sustainable agricultural practices?

FMC India has served farmers for more than three decades, and we are committed to enabling their prosperity, while contributing to the sustainability of agriculture. Our support is not limited to extensive product offering. The company has been running customised training programs for farmers throughout the year, promoting good agricultural practices covering all kinds of crops grown across the country.

To promote sustainable practices, the company is committed to attracting and developing talent in agriculture. We have recently partnered with eight universities across India to launch FMC Science Leaders Scholarship Program. This program is aimed at supporting the capability building effort in the R&D area of agricultural sciences to build resilience in the sector.

FMC India's program will support talent to flourish within the agricultural R&D system. The program will identify and fund an entire Masters or PhD degree for deserving students who wish to pursue higher studies in agricultural sciences. The selected candidates are also provided requisite industry exposure and mentorship so that they can contribute at a higher level once they complete their degree programs.

If the candidates desire to join FMC, they are accorded a priority in the future recruitment at the company. The program will allocate 50 per cent of the seats to female candidates to encourage women in agriculture.

Time to prioritise financing sustainable agriculture

A Amarender Reddy
Tulsi Lingareddy

India's need to prioritise the strategies for financing sustainable agriculture becomes imperative with the Cabinet's approval of the updated Nationally Determined Contributions (NDCs), submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in August.

Per the updated NDCs, India now stands committed to reducing the emissions intensity of its Gross Domestic Product (GDP) by 45 per cent from the 2005 level by 2030 against the earlier target of reducing emissions intensity by 33-35 per cent, submitted in October 2015.

To achieve the (Panchamrits) NDCs, India needs a substantial capital of about ₹11-lakh crore per year between 2015 and 2030 but has raised only ₹3.09-lakh crore per year during 2019-20, according to Landscape of Green Finance in India, a study report by Climate Policy Initiative.

The capital raised comprises both public and private funds from domestic (83 per cent) and international (17 per cent) sources, covering three sectors — clean energy (42 per cent), energy efficiency (38 per cent) and clean transport (17 per cent).

MAKING FARMING climate ready PTI

The agriculture sector contributes for about 18 per cent of green house gas emissions (GHGs), according to the Indian Network for Climate Change Assessment (INCCA), Ministry of Environment and Forests.

Hence, there is an urgent need to adopt climate smart agricultural practices for ensuring food security as well as for meeting the commitments of net-zero emissions.

The main focus of green finance has been on clean energy and transportation. The emphasis on agricultural and related activities is significantly low. For instance, only 10 per cent of total green bonds' allocation was for Agriculture, Land Use, Forests, and Ecological Resources during 2020-21, according to a World Bank report. There is an urgent need to develop resilient high yielding varieties (HYVs), and technology for efficient recourse use.

India's food security, achieved with a remarkable growth in agriculture during the past 75 years, has come at the cost of water pollution, loss of biodiversity and exhaustion of groundwater and soil fertility ultimately leading to falling yields. Frequent floods and droughts due to climate change are already impacting food production adversely.

POLICY REORIENTATION

Policy incentives like price support, procurement, input subsidies, etc., have played a significant role in shifting to intensive mono-crop cultivation of rice and wheat from pulses, coarse cereals and oilseeds. It is time to reverse such distorting interventions and reorient the policy towards promoting sustainable agriculture.

Awareness needs to be created among both farmer producers as well as investors for the success of financing sustainable agriculture.

Instigating responsible production practice of agricultural commodities can attract potential private investments.

A comprehensive regulatory framework is essential to ensuring transparent flow of green finance and avoid green washing with requisite disclosures and tracking mechanisms in place. In this regard, the Securities Exchange Board of India has been taking initiatives like disclosure guidelines, and a framework for issuing green bonds. Apart from the regulators, it is also the responsibility of the stakeholders to actively engage in the process in order to account for all possible externalities.

Thus, for India to ensure its food security, while complying with the NDCs, it is essential to prioritise financing sustainable agriculture. Indian farmers' livelihoods, majority being smallholders, are vulnerable to climate change.

A judicious blend of public and private interments is essential to meet the substantial capital required for financing sustainable agriculture.

Reddy is Principal Scientist (Agricultural Economics) ICAR-Centre Research Institute for Dryland Agriculture, Hyderabad; Lingareddy is Consultant Economist - Financial Markets, Sustainable Finance and Agriculture

National logistics policy gets Cabinet approval

HT Correspondent
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NEW DELHI: The Union Cabinet chaired by Prime Minister Narendra Modi on Wednesday approved the national logistics policy which aims to remove gridlocks in the movement of goods, lower logistics costs and bring in a tech-enabled unified system across supply chains.

The prime minister had on September 18 announced the policy that will cut across sectors and will complement the PM GatiShakti National Master Plan, a multi-modal connectivity infrastructure development programme.

The national logistics policy aims to reduce cost of logistics in India to be comparable to global benchmarks by 2030. The country's costs in transport, storage and material handling are estimated to be around 14% of GDP, higher than advanced economies' average of 8-10%, according to data from the World Bank.

The policy also envisages to improve the country's Logistics Performance Index ranking and figure among top 25 countries by 2030, aside from creating data-driven decision-making for an "efficient logistics ecosystem",as per a Cabinet statement.

"The policy has been developed through a consultative process held between several ministries, industry representatives and economists," the statement said. It will utilize the existing institutional frameworks such as the empowered group of Union secretaries that oversees the PM GatiShakti plan. "The vision is to develop a technologically enabled, integrated, cost-efficient, resilient, sustainable and trusted logistics ecosystem for accelerated and inclusive growth," the statement said.

The policy lays down an "action agenda" for immediate on-ground implementation of initiatives such as a unified logistics interface platform (ULIP), which will be basically a large secure network which shippers, consignees as well as government agencies can access for real-time information.

Agri body expresses concern over Punjab, Haryana's pesticide ban

Terms the decision as 'trimming feet to fit one's shoes'

PRABHUDATTA MISHRA
New Delhi, September 18

Peeved at the ban of 10 pesticides by Punjab and Haryana governments last month, the Crop Care Federation of India (CCFI) has termed the decision as "trimming the feet to fit the shoes". It has suggested that instead of meeting the Maximum Residue Levels (MRLs) standards set by the European Union (EU), India should impose similar standards on items imported from that region.

"Banning pesticides in India to meet the EU MRLs amounts to trimming the feet to fit the shoes," said S Ganesan, Advisor (Trade Related International Agreements) with CCFI.

He also said that India should implement its own rules framed under the Food Safety and Standards Act.

India must impose similar standards on imports from EU, it said

Last month, Punjab and Haryana banned 10 pesticides used in the basmati crop for 60 days.

APEDA's request

Haryana government's notification said that the Agriculture and Processed Food Products Export Development Authority (APEDA) had made a request to take action like a ban or restriction on the use of specific pesticides like tricyclazole, which are found most commonly as residues in basmati rice.

APEDA had even sought to at least impose a temporary ban on the use of tricyclazole during the current Kharif season. Punjab government, on the other hand, said it received a similar representation from the State Rice Millers and Exporters Association.

The orders by both the States have prohibited the sale, stock, distribution and use of all types of formulations of the 10 insecticides — acephate, buprofezin, carbendazim, chlorpyriphos, methamidophos, propiconazole, thiamethoxam, tricylazole, profenophos and isoprothiolance.

Pakistan's gain

Ganesan said the EU is a minor market for rice in general and for Indian rice in particular. Though India has lost to Pakistan in the EU market, it is more due to price rather than MRL.

He cited that Pakistan had sold basmati in the EU at $857/tonne against India's $894/tonne during 2017-21.

India's share in EU rice import declined to 11 per cent in 2021 (calendar year) from 31 per cent in 2012 whereas in the same period Pakistan's share surged to 25 per cent from 5 per cent.

"The decision was ill-conceived, unwarranted and will not help increase basmati rice export," said Deepak Shah, Chairman of CCFI. "Instead, it would only increase the cost of cultivation as the farmers would be forced to use expensive alternatives."

Hit by disease, paddy yield may fall by 10%

20-50 pc rice crop damaged in Sirmaur district

No shortage of fertilisers: Mandaviya

Experts warn farmers against overuse of pesticides for crops

ROHTAK, SEPTEMBER 1

Excessive and injudicious use of chemical fertilisers and pesticides by farmers to increase their crop yield has rendered a considerable chunk of the region's soil infertile, leading to serious health disorders such as cancer and infertility in humans.

The over-dependence of farmers on chemical farm inputs is reducing soil's natural fertility.

Agricultural experts warn that the overuse of chemicals will have disastrous consequences on health in future.

"Besides the quest for a high yield, lack of knowledge and high cost of requisite farm inputs also lead to injudicious use of pesticides and chemical fertilisers," said Dr Rajinder Chaudhary, former professor of economics at Maharshi Dayanand University (MDU), Rohtak. He is serving as Adviser, Kudarti Kheti Abhiyan, Haryana, at present.

Dr Chaudhary points out that most farmers are advised on farm inputs by their neighbouring farmers or shopkeepers selling seeds and fertilisers.

"Studies have shown that pesticides have been used up to 750 times of the recommended quantity or safe limit, which is alarming," he said.

Dr Chaudhary said since many farmers cultivate the land taken on oral lease, they do not bother about the long-term impact of excessive use of chemicals on the health of the soil. "Apart from the excessive and injudicious use of chemical inputs, continuation of conventional farming involving wheat-paddy cycle also affects soil fertility," the expert added.

MANY CULTIVATE ON LEASED LAND

> Since many farmers cultivate the land taken on oral lease, they do not bother about the long-term impact of excessive use of chemicals on the health of the soil. **Dr Rajinder Chaudhary,**
> ADVISER, KUDARTI KHETI ABHIYAN, HARYANA

Sanjay, a farmer of Madina village in Rohtak, said chemical-free farming had become difficult in the current scenario owing to low productivity, and risk of diseases and pest attacks on crops.

On the other hand, Jagmender Kundu, an organic farmer, is of the opinion that most farmers preferred chemical-based farming as organic or natural farming required more care and efforts.

Experts feel that adoption of natural farming and agronomic techniques holds the key to making agriculture a sustainable. — TNS

Govt readies scheme to curb use of chemical fertilisers

HARIKISHAN SHARMA
New Delhi, September 18

THE UNION GOVERNMENT intends to launch a scheme — named PM PRANAM — to reduce the use of chemical fertilisers by incentivising states, *The Indian Express* has learnt.

The proposed scheme, short for PM Promotion of Alternate Nutrients for Agriculture Management Yojana, also aims to bring down the subsidy burden on chemical fertilisers, which is estimated to reach ₹2.25 trillion in 2022-23, that is 39% higher than last year's figure of ₹1.62 trillion.

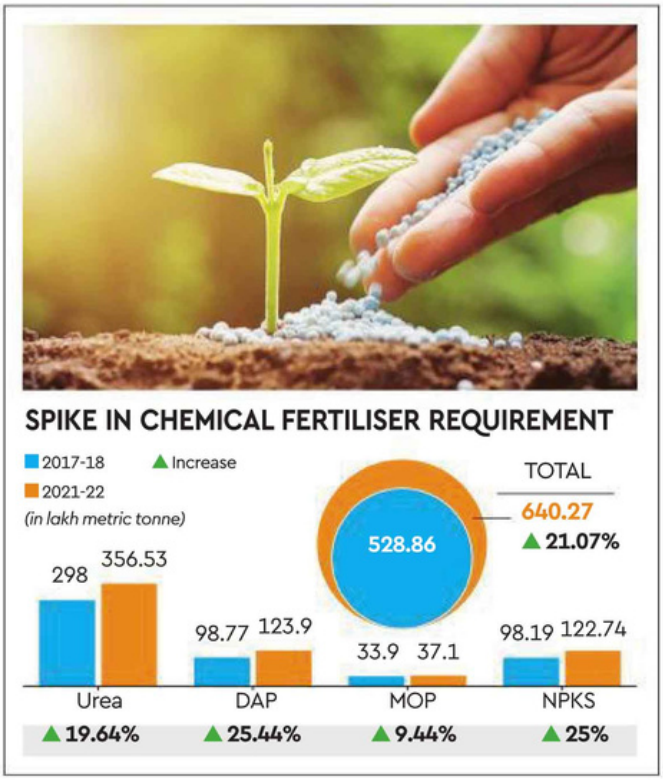
It assumes significance in view of the sharp increase in the overall fertiliser requirement in the country during the last five years.

It is learnt that top officials of the Union ministry of chemicals and fertilizers, which has mooted the idea of PM-PRANAM, shared the details of the proposed scheme with state government officials during the National Conference on Agriculture for Rabi Campaign held on September 7. The ministry has also sought their suggestions on the features of the scheme, it is learnt.

Sources said the ministry has initiated inter-ministerial discussions on the proposed scheme and that its draft will be finalised after incorporating the views of the departments concerned.

A source hinted that the scheme will have no separate budget and will be financed through the "savings of existing fertiliser subsidy" under schemes run by the department of fertilizers.

According to sources, 50% of subsidy savings will be passed on as a grant to the state that saves the money. Sources also said that 70% of the grant provided under the scheme can be used for asset creation related to technological adoption of alternate fertilisers and alternate fertiliser production units at village, block and district levels. The remaining 30% grant money can be used for rewarding and encouraging farmers, panchayats, farmer producer organisations and self-help groups that are involved in the reduction of fertiliser use and awareness generation.



Giving an example of the calculation in reducing chemical fertiliser use, a source said a state's increase or reduction in urea in a year will be compared to its average consumption of urea during the last three years. For this purpose, data available on a Fertilizer Ministry dashboard, iFMS (Integrated Fertilizers Management System), will be used, said the source.

Official records show the actual expenditure on fertiliser subsidy was 1.27 trillion in 2020-21. In the Union Budget 2021-22, the government budgeted an amount of ₹79,530 crore, which increased to ₹1.40 trillion in the revised estimates (RE). However, the final figure of fertiliser subsidy touched ₹1.62 trillion in 2021-22.

In the current financial year (2022-23) the government has allocated ₹1.05 trillion. The fertiliser minister has said the fertiliser subsidy figure could cross ₹2.25 trillion during this year.

According to a written reply given to Lok Sabha by Bhagwanth Khuba, the Union minister of state for chemicals and fertilizers, on August 5, the total requirement of four fertilisers — Urea, DAP (Diammonium Phosphate), MOP (Muriate of potash), NPKS (Nitrogen, Phosphorus and Potassium) — in the country increased by 21% to 640.27 lakh metric tonne (LMT) in 2021-22 from 528.86 LMT in 2017-18.

The maximum increase — 25.44% — has been recorded in the requirement of DAP. It went up from 98.77 LMT in 2017-18 to 123.9 LMT in 2021-22. Urea, the most used chemical fertiliser in the country, recorded an increase of 19.64 per cent — from 298 LMT in 2017-18 to 356.53 in 2021-22 — in the last five years.

The move is in line with the government's focus on promoting a balanced use of fertilisers or alternative fertilisers in the last few years.

To plug leakages in fertiliser subsidy, the Centre had introduced a direct benefit transfer system in fertilizers with effect from October 2016. Under this system, 100% subsidy on various fertiliser grades is released to the fertiliser companies on the basis of actual sales made by the retailers to the beneficiaries. Besides, the government had incorporated new nutrients like Nano urea and "bio-stimulants" in the Fertilizer Control Order-1985 (FCO). In addition to this, initiatives like Soil Health Card and neem-coated urea have also been taken.

On December 21, Union minister for chemicals and fertilizers Mansukh Mandaviya had informed Lok Sabha that the government "encourages the balanced use of fertilisers" in conjunction with biofertilisers and organic fertilisers.

Four PAU wheat varieties to be released across nation

TRIBUNE NEWS SERVICE

LUDHIANA, AUGUST 31

Four wheat varieties from the Punjab Agricultural University (PAU) have been identified for release across the nation.

The varieties were identified at a meeting of the Varietal Identification Committee (VIC) held under the chairmanship of Dr TR Sharma, Deputy Director General (Crop Sciences), Indian Council of Agricultural Research (ICAR), at the Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior (Madhya Pradesh) on Monday.


The wheat varieties were identified during a meeting of the Varietal Identification Committee in Gwalior, Madhya Pradesh, on Monday.

TYPES & ZONES

- **PBW 826** to be released in the North West Plain Zone and North East Plain Zone
- **PBW 872** to be released in the North West Plain Zone
- **PBW 872** to be released in the North West Plain Zone
- **PBW 833** to be released in the North East Plain Zone

The decisions of the VIC were announced on Wednesday during the plenary session of the 61st All India Wheat and Barley Research Workers' Meet held from August 29 to 31.

PBW 826 wheat variety has been identified for release under irrigated timely sown conditions of the North West Plain Zone — comprising Punjab, Haryana, Delhi, and western Uttar Pradesh, parts of Rajasthan, Uttarakhand, Jammu and Himachal Pradesh. It ranked first for grain yield in the zone during all three years of testing. It possesses bold grains with higher hectolitre weight.

The variety was also identified for release under irrigated timely sown conditions of the North East Plain Zone comprising eastern Uttar Pradesh, Bihar, West Bengal and Jharkhand, etc on the account of high grain yield. It is rare that a wheat variety has been identified simultaneously for the two major wheat-growing zones of India.

Another PAU wheat variety named PBW 872 has been identified for release under irrigated, early sown and high-yield potential conditions of the North West Plain Zone.

Also, PBW 833 variety has been identified for release under irrigated late-sown conditions of the North East Plain Zone on the account of high-grain yield, rust resistance and protein content.

Paddy dwarfing disease spreading fast across region, farmers worried

More than 3,500 hectares of standing crop affected in Ludhiana dist; loss of ₹51.35 crore estimated

NITIN JAIN
TRIBUNE NEWS SERVICE

LUDHIANA, SEPTEMBER 3

The dwarf disease in paddy, caused due to the southern rice black-streaked dwarf virus (SRBSDV), seems to be spreading fast in the region, leaving the farmers worried, if the official figures are any indication.

While over 3,500 hectares of standing paddy crop has already been officially hit by the SRBSDV, which has appeared for the first time in Punjab, the latest survey conducted by the scientists of the Punjab Agriculture University (PAU) has also confirmed that stunted plants have been observed in rice and basmati fields in almost the entire state, especially in Patiala, Fatehgarh Sahib, Ropar, Mohali, Hoshiarpur, Pathankot and Gurdaspur districts.

The incidence of stunted growth of paddy has been reported in various blocks of Ludhiana.

Farmers show stunted paddy to farm experts at Kot Gangu Rai village in Ludhiana on Saturday. TRIBUNE PHOTO: HIMANSHU MAHAJAN

WHAT EXPERTS SAY

"Stunted plants have been observed in rice and basmati fields. The stunting is more pronounced in early sown rice crop than the crop sown after June 25, irrespective of the variety. Farmers are urged not to use any pesticide. **Dr Satbir Singh Gosal**, VICE CHANCELLOR, PAU

"Dwarf disease is due to a double-stranded RNA virus that was first reported from Southern China in 2001. The symptoms produced on the rice as well as the genome structure resemble that of rice black-streaked dwarf virus. **Dr AS Dhatt**, DIRECTOR OF RESEARCH, PAU

THE TREATMENT

The virus is spread in the fields by the vector — white backed plant hopper (WBPH), which needs to be controlled in order to tackle the disorder. The farmers should regularly monitor the fields. The nymphs of WBPH fall in the water if one taps at the stem of the plant. To control it, the farmers have been advised to spray Triflumezopyrim 94 ml per acre or Dinotefuran 80 gm per acre or Pymetrozine 120 gm per 100 litres of water

Confirming this, Chief Agriculture Officer (CAO) Amanjit Singh said on Friday that the investigation conducted by the Agriculture Department so far had revealed that the stunted growth had been seen mostly in patches and not the entire fields of paddy.

Ludhiana, which has grown paddy over 2,58,600 hectares this crop season, the highest ever in the state, has reported the disease over 3,500 hectares, which accounted for 1.35 per cent of the total area under paddy.

If the crop yield pattern and pricing was taken into consideration, the farmers in Ludhiana district alone have so far suffered a loss of over Rs 51.35 crore as at least 2,51,720 quintals of paddy yield has already been hit by the disease. In 2021-22, Ludhiana district had recorded 7,192 kg per hectare paddy yield and the minimum support price (MSP) of paddy for 2022-23 has been fixed at Rs 2,040 per quintal.

The Agriculture Department has confirmed stunted growth of paddy in Ludhiana block (300 hectares), Khanna (1,500 hectares), Samrala (1,100 hectares), Machhiwara (400 hectares), Doraha and Mangat (50 hectares each), and Sidhwan Bet block (100 hectares).

"It is mainly observed in early transplanted paddy crop and has been reported in varieties like PUSA-44, PR-126, and PR-121, which were transplanted between June 15 and 25," the CAO said.

He said the stunting symptoms were observed in 5-7 per cent area of the affected fields.

Drones can play a critical role in smart farm era

Drones can bring in quantitative and qualitative changes in agriculture, though cost still remains a deterrence

RG AGARWAL

(The author is Chairman, Dhanuka group)

In the current era, which is defined more by technology-led innovations (happening almost at a break-neck speed) than anything else, modest to massive changes in practices and applications across the business spectrum are fast becoming the norm.

Amidst myriads of technology-led wonders, the application of drones to add efficiency to the execution of normal processes across various domains, including agriculture, is increasingly gaining prominence. From a mere hobby sport 10 years ago, a clutch of nations, including India, have now decided to go full steam ahead in tapping this application. In the non-defence category, agriculture is slated to lead the pack in terms of faster adoption of drone applicability for better results, with potential to benefit all stakeholders in the eco-system.

The credit for showing immense possibilities of drones' usage in agriculture certainly goes to Israel. To the progressive minds across the world, it means large-scale or even revolutionary changes which the technology can deliver. Drones draw their recently found strength by way of becoming another major remote sensing tool for data collection. As a data gathering tool in various spheres, it is probably more convenient and cheaper than a satellite imaging system.

Drones promise to add efficiency across the value chain. It offers a host of benefits in basic applications like spraying, dripping and granule dropping. It could be used in seeds dropping in forestry and plantation and induced pollination in seed production. Among all the remote sensing technologies, it is probably the best to provide imagery data vis-a-vis crop field survey, soil health, pest identification, disease diagnosis, plant stress and growth monitoring, yield monitoring, etc. The data thus gained helps regulate crop health, crop treatment, crop scouting, irrigation, and carry out field soil analysis and crop damage assessments.

The farmer can improve production capabilities through comprehensive irrigation planning, adequate monitoring of crop health, increased knowledge about soil health, and adaptation to environmental changes. On the top of it, there are now empirical studies to convincingly demonstrate that the use of drones results in significant saving in water volume, better RoI, and safer for operators via-a-vis basic equations in traditional manual processes. As per some estimates, pesticide spraying by Drone would cut down water usage by at least one-fifth.

The increasing adoption of drones in agricultural practices is also on account of the growing uncertainty vis-à-vis climate change concerns across the planet. To deal with the changes which climatic vagaries can thrust upon the agriculture sector, there is a clarion call of shifting to more scientific or smart agriculture regime for better data collection, data crunching and timely and quick response to any production related abnormality using advanced technology platforms like AI, IoT, data analytics, etc. Precision farming, or largescale technology-enabled farming, is considered to be the driving form of the future. And here drones have a very vital role to play as basic data collection agents.

In India, the story of drone application in agriculture has just begun and it's today mostly seen by way of deployment in spraying activities. But I reckon, in the next three-four years, drone usage in agriculture will cover other elements of the operational value chain. That would indeed need demand for more skilled drone operators in the market.

A slew of policy initiatives like Liberalised Drone Rules 2021, and announcement of Production-Linked Incentive (PLI) scheme for drones business have been unveiled. They are shaping a vibrant eco-system of start-ups which are now ready to carry the baton of the Indian drone business globally.

The government's emphasis in promoting drone usage in our farms also became clear when in February, it announced a dedicated Kisan Drone scheme that offers a slew of attractive incentives. These include 50 per cent (or a maximum of Rs 5 lakh) subsidy to SC-ST, small and marginal farmers of northeastern states, as also women, to buy drones.

Simply put, with the increasing intervention of drones in agricultural practices, India today is at the cusp of a very significant technological transformation. As per a study conducted by BlueWeave Consulting, a strategic consulting and market research firm, Indian Agriculture Drone market is forecast to witness a four-fold increase by 2028, with a projected CAGR of more than 25 per cent during 2022–2028.

However, India being a 'price sensitive' market, the cost of drones remains a big hurdle. An agriculture drone, typically operated using Internet-based smart technologies, undertaking from spraying to monitor crop health, can cost anywhere between ₹5 lakh to ₹10 lakh lakh. While the announcement of Production-Linked Incentive (PLI) scheme for drones last September is a step in the right direction, a lot still needs to be done.

Drones can deliver substantial value to farmers. But it is high time to look at a larger collaboration among all stakeholders to derive maximum benefits out of its usage to take Indian agriculture to a higher altitude.

A first-of-its-kind afforestation initiative by Karnataka Horticulture

HANS NEWS SERVICE
BENGALURU

MPHASIS, United Way of Bengaluru , an NGO and Department of Horticulture, Karnataka have come together to drive a first-of-its-kind afforestation initiative. Under the initiative, a dense forest is being set up on an 11-acre plot, which is part of the 228 acres Botanical Garden at Doddasaggere Botanical Garden in Koratagere, Tumkur district.

Plan entails, one lakh dry deciduous tree saplings will be planted over the 11-acre horticulture land. This green intervention by planting native species can help absorb 21,00,000 kilograms of carbon and produce 1,18,00,000 kgs of oxygen annually. Katrina Mayer says, "Time spent amongst trees is never wasted time." This forest will serve as a space to explore native species for students, environmentalists and visitors.

UWBe signed the Memorandum of Understanding (MOU) with the Karnataka Horticulture Department today as a step forward. As per the MOU, UWBe shall also ensure maintenance of the green cover for the next three years with support from Mphasis, including regular watering, manuring, de-weeding and mulching of the area. Besides afforestation, as a part of UWBe's integrated watershed development, stream restoration, soil and moisture conservation activities have been planned at the project site. Just as Lalbagh is considered the Lung of Bengaluru, this intervention will help to improve the air quality, enhance biodiversity, and reduce the temperature in the vicinity, besides building an oxygen bank and carbon sink. All in less than 100 KM from Bengaluru.

Apart from the afforestation, Mphasis is also supporting United Way Bengaluru's "One Billion Drops" campaign to conserve rainwater by constructing percolation wells in the city of Bengaluru. Bengaluru's Lalbagh Botanical Garden, where UWBe has already built 280 percolation wells earlier, will take up the construction of additional 220 percolation wells with the support from Mphasis to cover the entire campus. "The existing percolation wells in Lalbagh have demonstrated multifold benefits. It has helped to address issues like water runoff, flood and a decrease in the groundwater table. The harvested water is used to water 1850 species of trees in the garden. It has been a boon for people living in the locality and businesses like plant nurseries," Dr M Jagadeesh, Joint Director, Lal Bagh. Additionally, over 1000 percolation wells will be built at various locations in the city. We are kickstarting the same by unveiling a 4 ft percolation well model at Lalbagh for all to see. Each percolation well can conserve 1,28,000 lts of rainwater annually and help augment the groundwater table level in the catchment area. The project aligns well with the Prime Minister's clarion call of "Catch the Rain, Where it falls, When it falls" under the National Water Mission. +Another significant intervention undertaken toward water security is the restoration

of Dommasandra Lake in Bengaluru. This multi-year project aims to improve water quality, enhance biodiversity, and increase community ownership. This initiative will help the population of Dommasandra Panchayat by increasing the groundwater level and benefit the flora, fauna and aquatic life. All these interventions are also aligned with the Sustainable Development Goals, such as SDG 6 – Clean Water and Sanitation, SDG 13 – Climate Action and SDG 15 – Life on Land.

"At Mphasis we are committed to creating an ethical, inclusive and sustainable future for all. By integrating environmental goals into our business strategy, risks and processes, we aim to create a lasting impact on the planet, foster a low-carbon economy and encourage effective waste and water management practices. This first-of-a-kind afforestation initiative in collaboration with United Way Bengaluru and Government of Karnataka, will enable us to combat global environmental concerns such as climate change and global warming. Moreover, with the combined efforts of the campaign, we are taking a huge step forward towards reviving the biodiversity of the state and helping fight the ongoing water crisis," said Srikanth Karra, CHRO Mphasis.

"Mphasis and United Way Bengaluru are committed to the cause of the Environment, and we firmly believe we owe it to our future generations. We complement the work undertaken by the Horticulture dept, local administration, and Gram Panchayats, as collaboration is key to all our interventions. UWBe believes in mobilising the caring power of the communities and involve stakeholders, including community members with whom the final ownership rests, there by addressing sustainability," said

Policy on organic farming soon

Irai Anbu stresses need to document traditional cultivation methods

SPECIAL CORRESPONDENT
CHENNAI

Chief Secretary V. Irai Anbu on Thursday chaired a meeting that discussed the drafting of a policy for organic farming in Tamil Nadu.

During the meeting, participants discussed in detail the need for a policy on organic farming and the need to expand it to more areas, an official release said.

The meeting discussed ways to create market for organic products, which could help in protection of environment, food security, agriculture and soil health.

Sustainable agriculture: Tamil Nadu government is exploring ways to create a market for organic products. ▪FILE PHOTO

The meeting analysed organic farming policies in Andhra Pradesh and Sikkim and discussed whether provisions in them would be suitable for Tamil Nadu. They also discussed possible practical difficulties in those policies.

The Chief Secretary emphasised the need to document traditional agricultural techniques and to disseminate them among farmers.

Special focus

Special focus would be given to the rain-fed regions and areas in the Western and Eastern Ghats, the release said.

Inputs from the meeting are to be used for the draft, which would be finalised in the next meeting.

Haryana CM Khattar emphasises on need for more research on natural farming

SUSHIL MANAV

CHANDIGARH: Haryana Chief Minister Manohar Lal Khattar while attending a brainstorming session regarding natural farming held at Gurukul, Kurukshetra on Friday stressed on conducting more research along with ensuring the extensive reach of the benefits of natural farming to the masses. Gujarat Governor, Acharya Devvrat, and Gujarat Chief Minister, Bhupendra Patel also attended the session.

Haryana Power Minister Ranjit Singh, Agriculture, Agriculture, and Farmers' Welfare Minister J.P Dalal, and Agriculture Minister of Gujarat Raghavji Patel also attended the session.

Bhupendra Patel had specially visited Gurukul Kurukshetra to study the model of natural farming. Haryana Chief Minister Manohar Lal Khattar welcomed him by presenting a bouquet. After this, the Governor of Gujarat, the Chief Ministers of both the states, the State Power Minister, the Agriculture Minister, officers of the Agriculture and Farmers' Welfare Department of the Government of Haryana and the officials of Gujarat held detailed discussions on natural farming. After this, these dignitaries also visited Gurukul's Natural Farming Farm and closely studied the crops being grown there. In the present time, natural farming is the need of the hour.

Haryana CM Manohar Lal Khattar greets the dignitaries during the brainstorming session in Chandigarh on Friday MPOST

There is an increasing trend among farmers and consumers for adopting this kind of cultivation in the country and abroad. Natural farming is not only beneficial for the farmer but also improves the health of the consumer as they get quality products.

It is believed that 'Ahara suddhau sattva-suddhih' means that the purity of food, follows the purification of inner nature. Haryana government is making continuous efforts to promote natural farming. The state government is giving a grant of Rs. 25,000 to those who adopt natural farming and buy an indigenous cow.

The Gujarat Governor, Acharya Devvrat said that today the use of chemical fertilisers and pesticides is increasing in agriculture. This reduces the fertility of the land. Today we need to adopt natural farming. This will not only reduce the cost of the farmer but will also ensure water conservation, said Acharya Devvrat.

A road map for India to engage with global trade

India had its reasons for opting out of the trade pillar of IPEF but firms can still be part of global supply chains by paying close heed to emerging rules governing trade

While flagging areas of concern, Piyush Goyal emphasised India would be participating in 'resilient supply chains', a key objective of IPEF ANI

When Prime Minister (PM) Narendra Modi endorsed the Indo-Pacific Economic Framework (IPEF) in May, the decision seemed to resonate with the government's newfound confidence in forging trade agreements with partner countries. At the end of last year, Union commerce minister Piyush Goyal announced that India was negotiating eight comprehensive economic partnership agreements, a much-enlarged version of the traditional free trade agreements (FTAs). One of these agreements, with the United Arab Emirates (UAE), is being implemented, while the first step towards another with Australia has also been taken. Further, agreements with the European Union, the United Kingdom, and Canada, among others, are currently being negotiated. Amid these engagements, Goyal's recent announcement that India will stay away from the trade pillar of the IPEF while joining the other three sounds a discordant note, although the minister indicated that this decision could be reviewed.

The IPEF, essentially a Joe Biden administration brainchild, is working towards a set of rules for enhancing engagement between 14 countries. The rules cover four pillars — fair and resilient trade, supply chain resiliency, clean energy decarbonisation, and tax and anti-corruption. The trade pillar includes issues intimately linked to the United States' (US) trade agenda — labour standards, environment and climate, digital economy, agriculture, transparency and good regulatory practices, competition policy and trade facilitation.


Biswajit Dhar

Labour standards usually entail conforming to the fundamental conventions of the International Labour Organization (ILO), which include freedom of association and right to collective bargaining, abolition of forced labour and child labour, and eliminating discrimination in employment and occupation. In short, the strengthening of labour rights. As the US views them, rules on environment and climate will require conformity with the principles of the Paris climate convention that seeks to limit greenhouse gas emissions.

There is no mention of tariff liberalisation in the IPEF, which is usually integral to trade agreements. The Biden administration clarified that the IPEF is "intentionally designed not to be a same old... traditional trade agreement". Its primary objective is to ensure a high degree of regulatory coherence and to make market access contingent upon conformity to regulatory standards.

If the rapid elimination of tariffs, which has been India's bugbear, is not part of the IPEF's trade pillar, why is India reluctant to engage? The answer was provided by Goyal in his interview with this paper. Apparently, India's reluctance arises from the possibility that the trade pillar "may involve certain binding commitments" about meeting labour and environmental standards, "which have traditionally not been a part of [India's] agreements". The minister also hinted that the government is unsure about digital trade.

This is hardly surprising given that the government is yet undecided about whether to limit cross-border data flow by insisting on data localisation or to meet the demands of global digital companies and allow unimpeded cross-border free flow of data.

Of course, for India, the most sensitive issue in the trade pillar is agriculture, which the minister didn't elaborate on. Securing larger markets for its agricultural products has always been a top priority for the US in its bilateral and regional agreements. Should the US seek to realise the same objective via the IPEF, India would find it difficult to accommodate the interests of foreign players, especially given the fragility of its farming communities.

While flagging the areas of concern, Goyal emphasised that India would be participating in "resilient supply chains", which is one of the key objectives of the IPEF. India's stance raises three sets of questions, the resolution of which is imperative for India to remain meaningfully engaged with the IPEF supply chains.

First, supply chains are organically linked to trade rules agreed to under bilateral and regional agreements, and the IPEF will be no exception. Second, it is important to recognise that conducting trade with advanced countries via bilateral and regional agreements is well-nigh impossible without conforming to labour standards. The US and the EU do not endorse agreements that don't include provisions on labour standards. And, third, some EU members are now adopting labour standards to monitor the functioning of supply chains, thus making these standards even more potent in an interconnected world.

Globally, supply chains have expanded on the back of supportive rules on trade and investment, besides conforming to technical standards. Just-in-time operations, without which supply chains cannot function, are critically dependent on liberal trade rules, an enabling environment for companies to operate freely, and ensuring that components and final products emerging from supply chains meet requisite technical standards. Labour and environmental standards are increasingly getting enmeshed in these rules. The trade pillar in IPEF has been tasked with designing these rules to make supply chains more resilient and well-integrated.

The EU members are in the process of adopting guidelines to ensure that companies respect labour rights and the environment when they are part of supply chains. Once adopted, companies will be required to "identify and, where necessary, prevent, end or mitigate adverse impacts of their activities on human rights, such as child labour and exploitation of workers, and on the environment". Germany went a step further by enacting the Supply Chain Act in 2021. From 2023, companies must ensure that human rights, including workers' rights, are not violated in their business operations and supply chains in the country. Businesses in India need to give close consideration to these emerging sets of rules so that they can remain meaningfully engaged in global trade.

Biswajit Dhar is professor of economics, Jawaharlal Nehru University
The views expressed are personal

Growth dwarfed, dejected Haryana farmers destroy standing paddy crop

SHIV KUMAR SHARMA
TRIBUNE NEWS SERVICE

YAMUNANAGAR, SEPTEMBER 10

Paddy cultivation has turned bitter for thousands of farmers in Yamunanagar district due to dwarf disease.

Dejected farmers have started destroying their three-month-old disease-hit paddy crop. Farmer Lakhwinder Singh Cheema of Sarawan village in the district has destroyed his standing crop on one hectare with a tractor.


A farmer destroys his crop in Sarawan village of Yamunanagar.

Cheema said that he had to destroy his crop due to stunted growth and non-emergence of panicle. "I have sown paddy on eight hectares this year. But the crop on two hectares was hit 100 per cent by dwarf disease. I destroyed one hectare

CONTINUED ON PAGE 10

Growth dwarfed, dejected Haryana farmers destroy...

crop on Thursday," said Lakhwinder Cheema.

Another farmer, Baljore Singh of Gundiani village, said that he destroyed his disease-affected paddy crop on three acres on Wednesday.

Farmers have sown paddy on 83,000 hectares in Yamunanagar district in the current paddy crop season. Of that, crop sown on 12,000 hectares has been affected by dwarf disease.

As per claims made by farmers before the authorities of Haryana Agriculture and Farmers Welfare Department, most incidents of stunted growth have been reported in Sawa-127, Sawa-7301, Shift Gold, Arize-6444, PR-114, Pusa-1509 and some other varieties. "Farmers had suffered huge loss in the wheat crop due to low yield in the past rabi season. Now, they will have to suffer loss due to dwarf disease. So, the government should immediately get a special girdawari conducted and give compensation to farmers," said Sanju Gundiana, district president of Bhartiya Kisan Union.

Dr Pardeep Meel, Deputy Director (additional charge) of Agriculture Department, Yamunanagar, said, "Dwarf disease has affected 12,000 hectares of paddy crop in Yamunanagar district. I have sent a report to the higher authorities of the department."

Paddy crop over 34,000 hectares hit by dwarf disease in Punjab

Natural farming to be part of curriculum, says minister

KURUKSHETRA, SEPTEMBER 15

The Union Minister of State for Agriculture and Farmers Welfare, Kailash Choudhary, today said natural farming would be part of the curriculum from Class III to PhD for which a committee had been constituted to prepare the syllabus.

The minister also informed that a model of natural farming would be prepared by the Indian Council of Agricultural Research (ICAR) and agricultural institutions. He was here in Kurukshetra to attend a seminar on natural farming at Gurukul, Kurukshetra. He was accompanied by Gujarat Governor Acharya Devvrat. The minister said, "To make farmers self-reliant, the ICAR and the agricultural institutions will prepare a model of natural farming and the world will see the Indian model. Gurukul, Kurukshetra, will be the base and the main research centre for it." "To connect the future generation with natural farming, it will be included in the curriculums from Class III to PhD for which a committee comprising agriculture scientists and vice-chancellors has been formed. The subject of natural farming will be included in the syllabus soon after receiving the report of the committee", he added. The minister visited the natural farming being done at Kainthala village. — TNS

Framing of agriculture policy our top priority: Dr Sukhpal

LUDHIANA, SEPTEMBER 12

Dr Sukhpal Singh, who today joined as the chairman of the Punjab State Farmers' and Farm Workers' Commission, said the state was predominantly a farming state and the sad part was that it doesn't have an agriculture policy of its own. The first mandate of the commission will be to frame an agriculture policy for the state, said Dr Sukhpal Singh, who is Principal Agro-Economist at Punjab Agricultural University (PAU).

The commission would frame the policy after extensive discussion with the state government and the PAU to enhance the profitability of farming system in Punjab. Both the Union and the state governments should help farmers to grow diversified crops, he said.

He further said sustainable farming system was the need of the hour, which should be implemented in phases. Farmers need to come out of the circle of wheat and paddy and grow diversified crops that are suitable for consumers as well as ecosystem.

"There is no problem in farmers growing wheat, but we need to find an alternative to paddy. We have alternatives like cotton and maize, but we need to find other alternatives as well according to the region and climate. Clusters can be formed, and alternative crops can be suggested according to the suitability of specific region," said Dr Sukhpal.

Further talking about the trade and demand of the farmers to open Pakistan border so that avenues with Gulf countries can also be opened, Dr Sukhpal said trade was a very important part in farming and should be given due importance. Opening of borders can give ample trade opportunities to the farmers. Punjab is a land locked border state, which produces non-perishable foodgrains and opening borders can also help in uplifting the economic stature of the farmers.

"The trade issue lies with the Centre while the farming is a state subject. It is the reason why this subject lies unattended but if the borders are open, it will help in improving the economic condition of the state farmers," he said. — TNS

Nano urea fast-tracked despite incomplete trials

IFFCO has said farmer field trials were done over four seasons on 94 crops across 21 States since 2019. Trials were continued during Kharif 2021-22 too in all the agro-climatic regions. Various combinations of nitrogen that were made available to plants were evaluated and the resulting yield compared. Overall yields from applying nano urea increased average yield by 7% compared to traditional practices deployed by farmers. When tested in fields that employed organic farming practices (no chemical fertilizers, save the nano urea) the yields jumped 11%.

The Hindu reached out to IFFCO for comments but hasn't received a response until publication.

One plant agronomist, who works for the Agriculture Ministry, told *The Hindu* that the process for approving a new fertilizer significantly depended on ICAR's field observations. It usually tested a product on approved research stations for at least three crop seasons. In the case of nano-urea, this evaluation was only for a two crop seasons.

A senior scientist privy to trial results said that while the practice was to gather trial data over three seasons before forwarding a recommendation, IFFCO had already conducted well designed trials including in farmer fields and Krishi Vikas Kendra research stations. "While company has claimed yield increases of even 25%, we didn't observe that. But we do see that urea is being saved," he said. When asked why a season's worth of data required was waived, "In our stations we saw some cases of yield increase by 3-8% but this wasn't significant on its own as anything from rain or climate could influence results," he added.

Dhanuka Agritech brings in new insecticide

HANS BUSINESS

HYDERABAD: Dhanuka Agritech Ltd., introduces insecticide 'DECIDE' targeting southern market in India. This powerful insecticide has efficacy against sucking pests in chilli that will help farmers getting control over multiple pests like mites, thrips, and whitefly, with a single spray. This insecticide with a unique combination of two molecules brought to the Indian subcontinent with the collaboration of Mitsui Chemicals Inc., Japan and Dhanuka Agritech Limited.

Abhishek Dhanuka, Sales Head, Dhanuka Agritech Ltd., said: "It is a powerful insecticide available in water-dispersible granule formulation and has excellent efficacy against sucking pests in chilli to help farmers get control over multiple pests with a single spray, without the need of mixing different insecticides."

THE HINDU VIJAYAWADA 09/09/2022

New disease affecting BT cotton creates panic among farmers in Kurnool

'Tobacco Streak Virus is affecting 10% to 15% of acreage in undivided district'

RAMESH SUSARLA
KURNOOL

A newly-emerging disease, caused by Tobacco Streak Virus(TSV) and affecting the BT cotton crop, is creating panic among farmers in Kurnool and Nandyal districts, where pink bollworm is already wreaking havoc causing severe yield loss.

The BT cotton, grown in 4 hectares, is one of the major crops in the undivided district of Kurnool. The Tobacco Streak Virus is affecting approximately 10% to 15% of the total cropped area of cotton in Kurnool.

"At present, the incidence is concentrated in Gudur, Kodumuru, Emmiganur madals of Kurnool district and Atmakur and Nandyal mandals of Nandyal district," said scientists of Regional Agricultural Research Station (RARS), Nandyal.

Prolonged dry spells during the initial growth phase favours rapid multiplication of sucking pests like thrips, which is the carrier of the TSV virus, RARS Associate Director of Research N.C. Venkateswrlu and entomologist Sivarama Krishna told *The Hindu*.

The scientists from Regional Agricultural Research Centre inspecting a TSV-affected cotton field at Sivapuram village in Kothapalle mandal of Kurnool district. •U. SUBRAMANYAM

Symptoms

The symptoms of TSV include appearance of brickish-red necrotic spots on the young leaves initially, spreading lesions on leaves, and sometimes forming numerous diffusing ring spots. Slowly, the area of discoloration increases and the leaf turns red and can dry up completely.

Infected leaves show alternating light green and red patches.

Bud and flower production gets reduced. Infected plants mature late and are small in size. The early infection causes the death of the plant before the flowering or bud sets in. The affected plants show leaf curling and mosaic with stunted growth.

The affected leaves/plants must be removed from fields to avoid secondary spread. The scientists urged farmers to go for intercropping with short-duration non-host crops like sorghum, redgram, green gram, black gram soya bean, pearl millet, and maize to stop the spread of the virus.

Hit by disease, paddy yield may fall by10%

20-50 pc rice crop damaged in Sirmaur district

TRIBUNE NEWS SERVICE

SHIMLA, SEPTEMBER 13

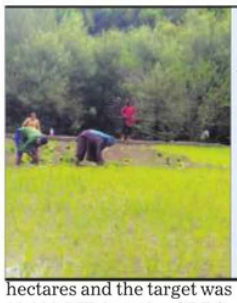
About 10 per cent shortfall is expected in the paddy production in the state during the kharif season as southern rice black-streaked dwarf virus (SRB-SDV), also known as dwarf disease, has damaged 20-50 per cent of the paddy crop in Sirmaur district.

The virus is transmitted by white-backed plant hopper (WBPH) in a persistent circular and propagative manner. The crop turns yellow and leads to stunting of paddy. The infected plants have shallow roots and could be easily uprooted.

Last year, the paddy production in Sirmaur district was 15,000 metric tonne (MT). This year the area under paddy cultivation in Sirmaur is about 7,600 hectares and the target was 28,000 MT but the SRBSDV has damaged 20-50 per cent of the paddy crop in this district and there will be a shortfall of 10 per cent in the total paddy production, said Director, Agriculture, BR Takhi.

As the reports of virus damaging the crop poured in, agriculture experts had advised farmers to remove paddy from farms and sow ladyfinger (alternative crop), he said and added that losses of most of the farmers would be covered under the Pradhan Mantri Fasal Bima Yojna.

The Indian Council of Agriculture Research has advised farmers to regularly monitor the rice/paddy crop, discard infected seedlings in early growth and tilt and tap a few plants twice or thrice a week to ensure that there is no presence of the WBPH.



PADDY TARGET IS 1,99,050 MT

- Paddy is grown on 88,160 hectares mainly in Kangra, Mandi and Sirmaur districts
- The target for paddy production in 2022-23 is 1,99,050 MT
- Rice, maize, ragi, millets and pulses are being cultivated in 2,91,940 hectares

Drones in agriculture: The issues at stake

SUBRAMANI RA MANCOMBU
Chennai, September 5

In May this year, Indian Prime Minister Narendra Modi, launching a two-day drone festival, said one of his dreams is to see a drone on every farm.

A quite ambitious target, but it also points to the importance the Modi government has given to the role of drones in agriculture.

Earlier this year, Finance Minister Nirmala Sitharaman, presenting her Budget for 2022-23 fiscal, said the government planned to ramp up the use of drone-based technologies in agriculture. More importantly, she said "Kisan drones" will be used in assessing crops.

High costs

Adopting drones in Indian agriculture has its own pros and cons. No doubt, Modi's vision of a drone per farm is laudable but the cost of a drone is something an ordinary farmer cannot afford. "A drone costs anywhere between ₹10 lakh and ₹12 lakh. An ordinary farmer will not be able to afford it. However, drones can be made available through a farm-as-a-service platform," said Susheel Kumar, Country Head and Managing Director, Syngenta India.

The Indian arm of the Swiss-based firm launched a drone yatra last month to cover 10,000 km across 13 States from Mancher near Pune in Maharashtra.

Probably, economies of scale can help realise the Prime Minister's dream. Experts in the sector are unanimous that drones help the Indian agriculture sector make a huge leap.

Centre's initiatives

A few firms such as Unnati, an agtech start-up platform, have launched drone services. The firm plans to spray 20,000 acres of land by the end of 2022 and increase drones' spray capacity by 4x next year.

On its part, the Centre is trying its best to popularise the use of drones.

The Centre is trying its best to popularise drones by offering sops

The Centre is also providing ₹6,000 per hectare as a contingency fund to farmers to hire drones from custom hiring centres.

But S Chandrasekaran, an agricultural trade analyst who experimented with drone farming in Tamil Nadu's Thanjavur district, said aerial spraying has been in vogue since 1986 in Japan.

A farmer in Mancher said manual spraying costs ₹500 an acre. "It will take at least four hours to spray an acre and the costs are only going up," he said.

Bengaluru-based General Aeronautics, which plans to produce 100 drones a month, has come up with "Krishak" brand drones that weigh 49 kg. The drones have been tested on 10,000 acres in 14 States across 45 crops. It is providing its drones on a business-to-business to corporates such as Syngenta and Bayer CropScience.

Issues with aerial spraying

The other advantage of using drones is that it helps save 95 per cent of the water used for spraying pesticides or insecticides. "It is enough if 150-200 ml of pesticide or insecticide is mixed in 8 litres of water," Srinivasan said.

Experts say since landholdings are small in India, it would be easy to monitor the functioning of drones, be it spraying fertilisers, insecticides or pesticides. But the small size could turn out to be problem.

There are some problems with aerial spraying. "It could contaminate water bodies and can affect small water streams (*nala* type), too. Animals could become victims. Appropriate height, speed, wind and ground tactics are needed in view of safety and security," said Chandrasekaran.

He said one solution could be to produce "ultra-low volume pesticide or fungicide" that can be adjusted for each crop and disease.

According to Akhilesh Jain, Co-Founder, Agrotech India, Andhra Pradesh has plans to launch 10,000 drones in phases through its Rythu Bharosa Kendra. Uttar Pradesh, Punjab, Haryana, Karnataka and Tamil Nadu are also working with manufacturers, farmers' organisations and state agriculture universities to roll out drones this year.

It's time to confer Bharat Ratna on agriculture scientists

TM MANJUNATH

The Bharat Ratna, India's highest civilian award, was instituted in January 1954. The award is conferred upon individuals in recognition of exceptional service/achievements in any field of human endeavour.

From 1954 until May 2022, the Union government has honoured 48 distinguished persons with the Bharat Ratna. Among them, politicians were the dominant recipients with 25 awardees. The remaining recipients included social reformers, musicians, engineers, industrialists, scholars, physicists, sportsperson, etc. However, no agricultural scientist or related expert has received this coveted award so far!

Since independence, India has made tremendous progress in integrated agricultural sector which includes food crops, horticultural crops, plantation crops, oil seed crops, poultry and animal husbandry, fish and other aqua cultures, sericulture and apiculture as also in plant protection, fertilisers, harvesting, food processing, etc. Some of the major path-breaking revolutions in these areas include:

(i) Green Revolution (foodgrains: wheat, rice and other crops)–from 1965;

(ii) Silver Revolution (poultry and eggs)–from 1969;

(iii) Silver Fiber Revolution (cotton crop)–from 1970;

(iv) White Revolution (milk/dairy)–from 1970;

(v) Blue Revolution (fish/aquaculture)–from 1985;

(vi) Golden Revolution (horticulture — fruits, vegetable, flowers; and apiculture - honey production, etc.)—from 1991.

There are also others like Yellow Revolution (oilseeds), Grey Revolution (fertilisers), and Red Revolution (meat production).

Despite these achievements, no agricultural scientist or expert has been honoured with the Bharat Ratna. Prof MS Swaminathan, who is now 97, has been hailed as the 'Father of Green Revolution in India' while the late Verghese Kurian was the undisputed 'Father of White Revolution.' They were recommended several times in the last 3-4 decades for the Bharat Ratna, but not considered!

At the time of Independence, our foodgrain production was inadequate and we depended heavily upon imports. Food distribution was also rationed. So, even for the rich, foodgrains and other essential food items were not available. Fortunately, owing to agricultural revolutions, starting from the Green Revolution, our production doubled around the 1970s and we never looked back.

India turned from an importer to an exporter of foodgrains. Scientists and farmers backed by positive government policies have been largely responsible for it.

These revolutions, as in any other fields including politics, have been a result of team work and if the team leader is recognised, other members should feel proud. However, no scientist or expert in the agricultural sector has been bestowed upon 'Bharat Ratna' in the last 68 years of its inception. Not only the Bharat Ratna, even the other Padma Awards have been given only to a few scientists.

There are some self-proclaimed environmentalists who criticise and condemn various revolutions including the Green Revolution and also certain modern technologies including hybrid crops, biotechnology, etc. Scientists should not be deterred by them. They must continue their research to find solutions to emerging challenges including global warming, new pests and diseases, and feeding the burgeoning population.

The governments, both at the Centre and States, would do well to recognise and acknowledge the contributions made by agricultural scientists, both in the public and private sector. It would serve as an impetus for further research and progress. It is difficult to understand why the 'Bharat Ratna' has eluded agricultural scientists. But better late than never!

The writer, an agriculture entomologist with six decades of experience, is an independent Consultant in Biocontrol, Agri-biotechnology and Integrated Pest Management

PM Modi highlights govt efforts to support farmers

He talked about various other schemes that were launched by the govt for benefitting the migrant workers

AGENCIES
NEW DELHI, 8 SEPTEMBER

Prime Minister Narendra Modi on Thursday highlighted the efforts of the Central government for the welfare of the citizens, including the ones toward agriculture and rural households and said that it is the government's priority to support crores of farmers all across the nation at every step.

"Today, Gujarat's 97 per cent of rural households are receiving tap water... under PM-Kisan Samman Nidhi, Rs 2 lakh crores have been directly transferred to the accounts of the country's farmers," PM Modi said while interacting with beneficiaries of various schemes at Olpad in Gujarat's Surat.

The PM Kisan Samman Nidhi is a Government of India initiative under which the farmers in the country get up to Rs 6,000 per year as minimum income support.

He further talked about various other schemes that were launched by the Centre including One Nation, One Ration Card scheme for benefitting the migrant workers.

"One Nation, One Ration Card has benefitted migrant workers the most as it facilitates ration distribution to the beneficiary in any part of the country," he said.

Under the aforesaid scheme, the beneficiaries can claim or access the foodgrains from anywhere in the country. He further said how India has become the fifth largest economy and how its fight against the spread of coronavirus infection has been praised worldwide.

"The whole world has appreciated our efforts of implementing the largest vaccination program during COVID-19 and the way it has helped us in revitalizing economic activities.

Increasing GDP figures and the overtaking United Kingdom are the evident examples of our continuous growth," he said.

According to the Prime Minister, it was a good fortune for him to witness a confluence of thousands of beneficiaries of different schemes, "a kind of double engine government, Bhupendra-Narendra Sarkar," PM Modi said.

Congratulating Gujarat Chief Minister Bhupendra Patel for his initiative of Mega Medical Camp, he said, "The special Mega Medical Camp is a way of connecting people through Sewa, and I wholeheartedly congratulate Bhupendra Bhai for this initiative. It will benefit numerous citizens here."

He further emphasised that a healthy youth is reckoned as a healthy future for the nation. The BJP is ensuring the same by increasing the number of establishments like multi-speciality hospitals and AIIMS.

"We have laid special emphasis on health infrastructure in the past years, for creating awareness in the public regarding the prevention of diseases from turning fatal," he said.

"Today a strong network of multi-speciality hospitals has been created all over Gujarat. Medical colleges have increased from 11 to 31 in the last two decades. AIIMS is also coming up and many medical colleges are proposed," he added. Recalling the time of the Tapi floods in 2006, he said that he remembers how Surat's youth were out on street as soon as he met and requested them to rejuvenate Surat. He can never forget the support and blessings that Surat has showered on him, he added.

"I can never forget the blessings I received from Surat. This city beautifully stands on a firm base created by the collective efforts of locals, migrants and many

FMC India aims ₹5,000-cr revenue in 5 yrs

The global agricultural sciences company unveils five new products for pest management and soil fertility, and 10 more innovative products are in the pipeline

BB Bureau
Hyderabad

Ravi Annavarapu (L), President, FMC India unveiling new products in Hyderabad on Monday

FMC India has a range of 40 products under insecticides, fungicides and herbicides categories. After the five newly launched products, it has 10 more proprietary products in the pipeline, making the total range to 50 products over next five years

GLOBAL agricultural sciences company FMC India aspires to achieve Rs 5,000-crore revenue in five years from Rs 3,000 crore this year. To accomplish this ambitious plan, it has announced portfolio expansion with five new products in support of farmers to achieve better yields through good quality produce and an improved soil profile. The newly launched products will be available for sale from this December.

Ravi Annavarapu, President, FMC India, said, "For more than three decades, the company is committed to serve farmers and enable their prosperity, while contributing to the sustainable agriculture. The new solutions introduced today are a result of FMC's deep multi-year research in identifying farmers' challenges and addressing them effectively and quickly through customized innovations."

Currently, the company has a range of 40 products under insecticides, fungicides and herbicides categories. On Monday, it has launched two insecticides – Corprima and Talstar Plus, a herbicide – Austral, and two crop nutrition products – Petra Biosolution and Cazbo micronutrient solution. It has 10 more proprietary products in the pipeline, making the total range to 50 products over next five years.

FMC India's support of Indian farmers is not limited to its extensive product offering. The company has been running customised training programmes for farmers throughout the year, promoting good agricultural practices covering all kinds of crops grown across India. It has recently partnered with eight universities across India to promote sustainable agricultural practices.

In Telangana, the company has signed an MoU with Professor Jayashankar Telangana State Agricultural University in Hyderabad on a Model Village Programme. It has also collaborated with Acharya N G Ranga Agricultural University in Andhra Pradesh for a similar programme. It announced scholarships to 10 post graduate students and 10 graduate students from each university.

Additionally, FMC India works to provide clean and safe drinking water to rural communities through its flagship community outreach program Project Samarth. It has provided purified drinking water to more than one lakh farmer families with the installation of over 57 reverse osmosis water plants in the country.

Govt mulls setting up exclusive university for natural farming

Agriculture Minister Kakani Govardhan Reddy says the govt is taking measures to promote organic farming

HANS NEWS SERVICE
NELLORE

AGRICULTURE Minister K Govardhan Reddy informed that they were planning to establish an exclusive university for natural farming in the State. He visited the seafood festival at VR College Grounds in the city on Monday.

Govardhan Reddy visited the food stalls set up at the expo and appreciated the organisers who introduced many palatable dishes to the city population. He said the exhibits were organic food items and they are good for health.

The Agriculture Minister asked the organisers to conduct such festivals every year to introduce various kinds of seafood to the people who understand the richness of organic food.

He said the Agriculture Ministry was planning to set up a university for organic farming which is natural and not harmful to humans.

The university offers courses on natural farming methods and develops new farming methods through research and development for the benefit of the farmers and consumers. He said the entire globe was looking for quality products and the new institution would be a boon to farming for taking ahead further.

He said the State government was studying the problems faced by farmers who rely on fishing and cultivating seafood in the State. The Chief Minister was committed to protecting the interests of farmers, the Minister said.

Agriculture Minister Kakani Govardhan Reddy visiting a stall at the seafood festival at VR College Grounds in Nellore on Monday

He also said there was a huge demand for foods made with millets and such cafes should also be started for providing healthy food to the denizens.

Further, Agriculture Minister Govardhan Reddy laid a foundation stone for Sri Venkateswara Swamy temple at ST Colony in Kasumuru on Monday. The TTD is constructing the temple as part of 111 such temples being built across the State.

The Minister said the TTD was planning to build 1,342 Srinivasa temples in SC, and ST Colonies across the State and also giving training to tribals to maintain the temples on their own for offering prayers and conducting daily rituals.

Among the proposed 1,342 temples, 111 are being built in the first phase and 11 temples have been sanctioned for the Sarveypalli constituency, Govardhan Reddy said. He said 60 temples in the district have been identified for financial assistance of Rs 5,000 each per month for the Dhoopa Deepa Naivedyam scheme. He said 110 temples have been identified under the programme.

The Minister hinted that they were going to increase the monthly assistance to the priests from Rs 5,000 to Rs 10,000. Samarasatha Seva Foundation State assistant secretary Kota Suneel Kumar and members of the foundation were present.

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