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6th Edition

Fresh India Show

1-2 March 2024
NASHIK, Maharashtra, India

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HIGHLIGHTED MUMBAI AS A GREEN HOTSPOT



The 16th International Landscape and Gardening Expo 2023, held in the vibrant city of Mumbai, proved to be a resounding success, bringing together professionals, enthusiasts, and industry leaders from around the globe. Organized with meticulous planning and executed with precision, the event showcased the latest trends, innovations, and sustainable practices in the field of landscape design and gardening. Organized by Media Today Group, it promoted best greening practices and spread awareness about the

importance of trees, green living concepts and vertical gardening, this exhibition and conference series is one of a kind. The event covered Landscaping, Equipment, Gardening Products, Nursery, Outdoor Living, Exterior and Leisure Industry in the country. The event was inaugurated by the hands of a green enthusiast and known actress, Varsha Usgaonkar in the presence of Social Activist Mayank Gandhi, Bicycle Mayor of Mumbai Firoza, Jitendra Pardeshi Chief Superintendent BMC Garden Department, Founder

of Mission Green, Subherjeet Mukherjee, Actor & Celebrity Leslie Tripathy and other dignitaries. Landscape Industry and Selection of Venue The Modern Landscape Industry is booming with rapid urbanisation and industrialisation leading to ongoing new projects in India. The ultra-modern infrastructure like Airports, Highways, Sports stadiums, Golf Courses, Malls, Convention Centers, Green Belts, Amusement Parks, Open Spaces and Residential

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HOW DRONES ARE TRANSFORMING INDIAN AGRICULTURE PRACTICES

Drones or UAVs are converting the abstract concept of precision agriculture into a tangible reality. Let's delve into the multifaceted ways drones are transforming agriculture through compelling data and actionable insights.

— Amandeep Panwar

In India, where agriculture is a way of life rather than just a mere means of livelihood, it has been seeing a revolution over the past decades that has the potential to transform farming practices, making them more efficient, sustainable, and profitable. The catalyst behind this change is the adoption of drone technology. Drones—also known as Unmanned Aerial Vehicles (UAVs)—have found their wings in Indian farms, and the impact they are having is notably remarkable. Drones or UAVs are converting the abstract concept of precision agriculture into a tangible reality. Let's delve into the multifaceted ways drones are transforming agriculture through compelling data and actionable insights.



Remote sensing and monitoring Crop health remains paramount for maximum yield, which helps farmers to earn better profits. Drones—armed with state-of-the-art technologies like hyperspectral imaging—have revolutionised the way we perceive crop health. These nimble UAVs can capture images at incredibly high spatial and spectral resolutions, enabling the early detection of a wide array of issues. In a recent study, drones were able to identify pest infestations up to two weeks earlier than traditional monitoring methods, translating to potentially saving up to 30% of the harvest that otherwise might be lost. In India, where farming practices are as diverse as the culture itself, these drones are more than just eyes in the sky. They serve as advanced decision support

systems, facilitating targeted intervention and reducing the waste of critical resources like water, chemicals, and fertilisers. Moreover, the high-resolution imagery from drones allows farmers to identify the exact locations of these issues. This precise information is invaluable as it enables targeted intervention and prevents the unnecessary application of treatments across the entire field. This kind of precision can make a world of difference.

Precision crop management
India, like many

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ICAR-IIVR SCIENTISTS WORKING ON NEW HYBRID VARIETY: SOON, A SINGLE PLANT TO PRODUCE TOMATOES, BRINJALS, AND CHILLIES

— Sudhir Kumar, Varanasi

Using the grafting technique, the scientists at ICAR-IIVR, first developed 'Pomato' that yields potatoes and tomatoes and now the yielding of brinjal and tomatoes in 'Brimato' has been made possible. After successfully developing 'Pomato' and 'Brimato', the scientists at ICAR-Indian Institute of Vegetable Research (IIVR), Varanasi are now working on a new single plant that will yield three vegetables simultaneously—brinjal, tomato and chilli. It will



however take some time to name the plant. Using the grafting technique, the scientists at ICAR-IIVR, first developed 'Pomato' that yields potatoes and tomatoes and now

the yielding of brinjal and tomatoes in 'Brimato' has been made possible. Under the guidance of IIVR director Dr TK Behera, Dr Anant Bahadur, principal scientist (vegetable) and head division of crop production at ICAR-IIVR, Varanasi is now working on developing this unique single plant to yield three veggies. The grafting of chilly and tomato plants has been done on the brinjal rootstock and the plant is growing well. We are quite hopeful that it will start yielding chilly, brinjal and tomatoes by the end of January 2024, said Dr Bahadur. He said that he would analyse the feasibility of its cultivation. Speaking about 'Pomato', Dr Bahadur said, "Potato tubers were germinated. Then grafting of tomato plants was done on the germinated potato tubers. As per the need, the plant was irrigated from time to time. It grew well and bore tomatoes above ground and potatoes below the ground." 'Pomato' as a single plant yielded around three kg of tomatoes and around 1.25 kg

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- Africa and the Middle East: A potential powerhouse for sustainable agriculture
- Bio-fertilizers and climate change mitigation: A green solution for agriculture
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HIGHLIGHTED MUMBAI AS A ...



Townships are coming up and giving new dimensions to the art of green living in Modern India.

Lately, Mumbai has joined the Cities4Forest initiative and has signed the Call to Action for Forests and Climate, which intends to protect, conserve and manage its natural ecosystems. Mumbai is one of the major consumers of high-quality landscaping products, trees and potplants, catering to the demand of the emerging landscape and vertical gardening industry.

Considering the potential, Mumbai had been the prime choice for organizing the 16th edition of International Landscape & Gardening Expo 2023 supported by ISOLA, ISLE, IEIA, GCS&MAI, the National Society of the Friends of the Trees, NESCO, GFCL, iFLORA, CHAI, ISOH and other trade bodies.

To add value, a Global Conference on "Future Green Living Concepts & Tree Culture" followed by a 'Special Session on Landscape Industry and Golf Course & Sports Infrastructure' was also organized.

Event Overview

The 16th International Landscape & Gardening Expo 2023 was held from October 10 to 12, 2023 at the Bombay Exhibition Center, NESCO in Mumbai, India. The sprawling venue provided an ideal setting for a diverse array of exhibits and activities. Brihanmumbai Municipal Corporation (BMC) extended its support as the Principal Partner for the event. This was the first time Mumbai hosted a Global Conference on "Future Green Living Concepts & Tree Culture".

The event attracted over hundreds of professional visitors, including architects, landscape designers, gardening experts, horticulturists, and suppliers of landscaping materials and equipment. Attendees numbered over 10,000, comprising professionals, students, and gardening enthusiasts.

Key Highlights

- ❖ The Expo featured distinct zones, each dedicated to a different aspect of landscape and gardening. These included the Garden Design Pavilion, Green Technology Zone, Sustainable Practices Arena, and the Botanical Garden Showcase. The segmentation allowed attendees to explore specific areas of interest.
- ❖ A highlight of the event was the BMC Pavilion that highlighted the Chandrayan mission and showcased their unique gardening and landscape design concept.
- ❖ Cutting-edge technologies were a focal point, with exhibitors unveiling state-of-the-art tools and equipment for landscape design and maintenance.

Robotics, smart irrigation systems, and augmented reality applications for garden planning were among the innovative solutions on display.

- ❖ The Expo hosted a conference and a sports session by industry experts, covering topics ranging from sustainable gardening practices to the integration of technology in landscape design. These sessions were well-attended and provided valuable insights for professionals and enthusiasts alike.
- ❖ A major draw was the Botanical Garden Showcase, featuring a stunning array of rare and exotic plants, bonsai, vertical gardening balcony and hanging pots etc. This not only added a visual spectacle to the expo but also served as an educational platform for attendees to learn about biodiversity and conservation efforts.

The event addressed the role of green spaces in urban planning and correspondingly, emphasized the importance of integrating nature into the built environment for the well-being of communities.

The hands-on conference captured the imagination of attendees. Participants learned practical techniques for creating vertical green spaces, a trend gaining popularity in urban settings with limited horizontal space. A panel of experts engaged in a thought-provoking discussion on sustainable landscaping practices. Topics included water conservation, the use of native plants, and the role of landscaping in mitigating climate change. The discussion generated significant interest and raised awareness about environmentally conscious practices in the industry.

Industry Impact

The Expo's impact on the landscape and gardening industry is expected to be substantial. The introduction of innovative technologies, the emphasis on sustainability, and the global exchange of ideas are anticipated to shape the industry's trajectory in the coming years. Networking opportunities provided a platform for business collaborations and partnerships, fostering a sense of community within the industry.

Feedback from participants was overwhelmingly positive, with many expressing pleasure with the diversity of exhibits and the depth of knowledge shared during the educational sessions organised by The National Society of the Friends of the Trees for promotion of Bonsai, Ikebana and other floral arts etc.

Conclusion

The 16th International Landscape and Gardening



Expo in Mumbai successfully achieved its objectives of showcasing the latest trends, fostering knowledge exchange, and promoting

sustainable practices in the industry. The event's success was a testament to the dedication of the organizers, the participation of industry



leaders, and the enthusiasm of attendees. As the curtain falls on this edition of the Expo, the landscape and gardening community eagerly anticipates

the positive ripple effects that will influence and elevate the industry on a global scale.

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CITRUS GENETIC RESOURCES: SHAPING THE LANDSCAPE OF TOMORROW'S CITRUS FARMING

— Forishmeeta Boruah and Raaj Kumar Kakoti

The term "Citrus" refers to a genus of fruit-bearing plants and shrubs in the Rutaceae family. These trees produce fruits with a fleshy pulp, a fragrant aroma and significant amounts of citric acid. They are frequently used to treat or prevent scurvy because of their high vitamin C content. Northeastern India is one of the richest sources of Citrus genetic diversity. Several Citrus species are thought to have their origins in this region. Although future Citrus farming is under risk from a number of factors, including climate change, pests, diseases and a loss of genetic diversity. The conservation and utilization of Citrus germplasm is one of the strategies for overcoming these difficulties. Citrus germplasm collections are kept in gene banks, which are repositories of plant genetic resources that maintain regulated environments for storage of seeds, cuttings and other plant components. One such repository is Field Gene Bank (FGB), which is one of the most efficient ways to conserve Citrus germplasm. The North Eastern region of India is the centre of origin of Citrus fruits represents several natural wild species and commercially cultivated species. Therefore, it is necessary to conserve this vast genetic wealth including rare and endangered resources of Citrus of NE Region. A field Gene Bank at AAUCPCRS, Tinsukia, Assam has been established for conservation of Citrus accessions belonging to the different groups viz., acid lime, mandarin, sweet orange, pummelo & grapefruit and khasi papeda & wild species of North East Region.

Citrus refers to a genus of fruit-bearing trees and shrubs belonging to the family Rutaceae. The fruits of these trees are characterized by their fleshy pulp, fragrant aroma, and high levels of citric acid. Common Citrus fruits include oranges, lemons, limes, grapefruits, tangerines, and mandarins. Citrus fruits are some of the most popular and widely consumed fruits in the world and are commonly used in culinary, medicinal, and cosmetic applications. They are known for their high vitamin C content and are often used to treat or prevent scurvy. Additionally, the essential oils extracted from Citrus fruits are used in fragrances, cleaning products, and other applications. They are rich in vitamins, minerals, and antioxidants, making them a healthy addition to any diet. Citrus fruits are also a significant source of income for many countries, particularly in the Mediterranean region, the Americas, and Asia. One of the richest repositories of Citrus genetic variation is the northeastern region of India. It is believed that this area is where a great number of Citrus species first originated. Of the 27 Citrus species found in India, 23 are indigenous to the country's northeast. However, the future of Citrus cultivation is threatened by several factors, including climate change, pests and diseases, and limited genetic diversity. One way to address these challenges is through the conservation and use of Citrus germplasm.

Germplasm refers to the genetic material of a plant or animal species that can be used for breeding and research. Citrus germplasm encompasses the diversity of Citrus species, varieties, and hybrids that have been collected and preserved for future use. Citrus germplasm collections are maintained in gene banks, which are repositories of plant genetic resources that store seeds, cuttings, and other plant parts under controlled conditions. These collections are essential for the conservation, characterization, and utilization of Citrus genetic resources.

India is known for its rich diversity in Citrus fruits. Some of the important Citrus germplasm found in India, particularly in the North East region and Assam, are:

1. Nagpur Mandarin (*Citrus reticulata*): It is one of the most popular mandarin oranges grown in India, especially in Nagpur, Maharashtra.
2. Khasi Mandarin (*Citrus reticulata*): It is a variety of mandarin orange grown in Meghalaya, which is known for its unique aroma and flavor.
3. Assam Lemon (*Citrus limon*): It is a popular variety of lemon grown in Assam, known for its high juice content and acidic taste.
4. Kachai Lemon (*Citrus jambhiri*): It is a lemon variety grown in Manipur, used in cooking and as a traditional medicine.
5. Mousambi (*Citrus sinensis*): It is a variety of sweet orange grown in Assam, known for its juicy pulp and high vitamin C content.
6. Takyao Orange (*Citrus reticulata*): It is a mandarin orange variety grown in Mizoram, known for its sweet and juicy flesh.



Fig. a



Fig. b



Fig. c



Fig. d



Fig. e



Fig. f

Fig. 1 (a-f): Some collected Citrus germplasm

7. Bhutan Lemon (*Citrus macroptera*): It is a lemon variety grown in Bhutan and Arunachal Pradesh, used in cooking and traditional medicine.
8. Shatangju Mandarin (*Citrus limonia*): It is a mandarin orange variety grown in Manipur and Nagaland, known for its tangy taste and high juice content.

Importance of Citrus germplasm

Citrus germplasm is critical for the future of Citrus cultivation for several reasons. Firstly, it provides a source of genetic diversity that can be used to develop new Citrus varieties with desirable traits such as disease resistance, high yield, and improved quality. By using the genetic diversity of Citrus germplasm, breeders can develop varieties that are better adapted to changing environmental conditions, more resilient to pests and diseases, and meet the changing needs and preferences of consumers. Secondly, Citrus germplasm is essential for the conservation of Citrus genetic resources. Many Citrus species and varieties are threatened by extinction due to habitat destruction,



Fig. 2: Field Gene Bank with raised & sunken in 5 ha area have been established at AAU-CPCRS, Tinsukia, Assam

urbanization, and climate change. The conservation of Citrus germplasm collections ensures the longterm survival of these genetic resources, which may be crucial for the future of Citrus cultivation.

Thirdly, Citrus germplasm is a valuable resource for research. Scientists can use Citrus germplasm collections to study the genetics and biology of Citrus, identify new traits and genes, and develop new tools and technologies for breeding and genetic improvement. This research can lead to a better understanding of the genetic basis of Citrus traits and help to develop more efficient and sustainable methods for Citrus cultivation.

Citrus germplasm is a crucial resource for the future of Citrus cultivation. By conserving and using Citrus genetic resources, we can develop new Citrus varieties that are more resilient to pests and diseases, better adapted to changing environmental conditions, and meet the needs and preferences of consumers. Citrus germplasm collections also ensure the conservation of Citrus genetic resources and provide a valuable resource for research. Therefore, it is essential to continue to invest in the conservation and utilization of Citrus germplasm collections to secure the future of Citrus cultivation.

Citrus germplasm is the genetic material of Citrus plants that is conserved for future use. It is essential for the breeding of new Citrus varieties, improving crop yields, and maintaining biodiversity. The conservation of Citrus germplasm is vital because Citrus is an important fruit crop globally, and it is facing several threats such as climate change, diseases, pests, and genetic erosion. One of the most effective ways to conserve Citrus germplasm is through the establishment of a "field gene bank".

Some of the germplasms collected to conserve at the field gene bank at our respective centre are Khasi mandarin, Dwarf Khasi mandarin, Bira jora, Sarbati tenga, Nimti jambhiri, Champaun thambi, Elachi nemu, Honey orange, Bira jora, Khasi papeda, Bon jora, Assam lemon, Cleopatra mandarin, Soh myndong, Rough lemon, Bort enga, Grapefruit, Luipop sui, Sopai tenga, Holong tenga, Alimo, Pongam, Mitha sokola, Kagzi lime, Jeneru tenga, Gal gal, Australian orange, Pummelo, small pummel, Soh shylla, Sindhuri lemon, Ada jamir, Volkamariana. These germplasms were collected from different areas of Tinsukia district namely Pengeri, Dirak, Sadiya, Kakopathar,

Motapong, belongs to acid lime; mandarin; sweet orange; pummelo & grapefruit and khasi papeda and wild variety.

Field Gene Bank

A field gene bank is a conservation method where germplasm is conserved in the field, either in its natural habitat or under controlled conditions. The field gene bank has several advantages over other conservation methods, such as in vitro conservation or seed banks. First, it allows for the conservation of the entire plant, including the roots, shoots, and leaves, which is crucial for the conservation of the genetic diversity of Citrus plants. Second, the field gene bank provides a suitable environment for the plants to grow and reproduce, which is essential for the longterm conservation of Citrus germplasm. To establish a field gene bank for Citrus germplasm conservation, several factors need to be considered. First, the selection of the plant material should be based on the genetic diversity of the Citrus species, the importance of the variety, and its susceptibility to diseases and pests. Second, the field gene bank should be located in a suitable environment that provides the necessary growing conditions for the Citrus plants. The environmental factors to be considered include soil type, climate, water availability, and sunlight exposure.

Once the field gene bank is established, it requires continuous maintenance and management to ensure the long-term conservation of the Citrus germplasm. The management practices include monitoring the plant growth and health, controlling pests and diseases, and preventing genetic contamination. The

field gene bank should also have a database that contains information on the plant material, its origin, and the conservation practices used.

The conservation of Citrus germplasm in field gene banks is crucial for the future of Citrus production. It provides a source of genetic diversity that can be used to develop new Citrus varieties that are resistant to diseases, pests, and environmental stresses. Moreover, it ensures the long-term survival of the Citrus species, which is critical for the preservation of biodiversity.

Field Gene Bank is currently being constructed at Assam Agricultural University-Citrus and Plantation Crops Research Station, Tinsukia, Assam in the year 2023, so as to conserve the collected germplasm.

Conclusion

In conclusion, the establishment of a field gene bank is an effective method for the conservation of Citrus germplasm. It provides a suitable environment for the growth and reproduction of Citrus plants, allowing for the conservation of the entire plant. The field gene bank should be located in a suitable environment, and continuous maintenance and management practices should be employed to ensure of its long-term conservation for further use of breeding and utilization. The conservation of Citrus germplasm in field gene banks is essential for the sustainability of Citrus production and the preservation of biodiversity.

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ICAR-IIVR SCIENTISTS WORKING ON NEW HYBRID VARIETY: SOON, A ...

of potatoes, he added.

Thereafter, in 2019, Dr Anant Bahadur with his team grafted both the brinjal and tomato hybrids on the Brinjal root stock tolerant to waterlogging and salinity. In 2019, his team succeeded in getting the desired result. He said the 'Brimato' is capable of surviving in waterlogging conditions for four days, whereas a normal plant wilts and gets destroyed in waterlogging conditions

within 24 hours.

In October, the plant was transplanted, and brinjals and tomatoes were harvested till March. A single plant yields around 3 kg of tomatoes and 2.5 kgs of Brinjals, said Dr Bahadur.

Dr Bahadur said, "The special plant has been named Brimato because it yields both tomatoes and Brinjal. It can be grown in kitchen gardens, backyards and also in small fields," said Dr Bahadur.

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HOW DRONES ARE TRANSFORMING INDIAN ...



other countries, faces the challenge of balancing agricultural production with environmental preservation. The overuse of chemicals and water can lead to soil degradation and contamination of water sources.

Drones are not limited to surveillance. When coupled with the right analytical capabilities, the raw data can be transformed into actionable insights for real-time crop management.

For instance, by utilising the drone-acquired and analysed data, farmers can reduce fertiliser usage by an average of 26% by applying it only where it's needed. It is not just a financial boon but a leap towards sustainable agriculture that mitigates environmental impact.

Efficient field scouting

Given India's vast geographical expanse, monitoring remote or hard-to-reach farms is a unique challenge. Here, drones are an asset, reducing the hours of manual labour involved in field scouting to mere minutes.

According to recent estimates, drones can cover 200 acres in just 30 minutes, offering timely and accurate data. It is valuable for smallholder farmers, who make up close to 68% of the Indian farming community, enabling them to act before a problem like a pest infestation becomes economically damaging.

This efficiency in field scouting allows farmers to stay ahead of potential issues, even in remote or less accessible parts of their farms. Instead of labour-intensive, time-consuming manual inspections, drones provide a cost-effective and timely alternative.

Data-driven decision making

We're in an era where data-driven strategies are not the exception but the rule, and agriculture is keeping pace. Drones generate extensive datasets that offer an in-depth look into crop health, growth patterns, and other variables.

For example, a farmer in Uttar Pradesh can now optimise planting densities of sugarcane based on drone-collected data, potentially increasing yields by up to 10%.

Imagine a farmer in the heart of Punjab who can now use drone-acquired data to optimise planting densities, manage nutrients effectively, and plan their harvest with precision. Such data-driven decisions can lead to higher yields and, consequently, better profits.

Enhanced sustainability

Sustainable farming practices are a necessity for the future of agriculture, and drones are playing a vital role here. They

help lower the environmental impact of agriculture by reducing the overuse of chemicals and water.

Water scarcity and environmental degradation are immediate concerns that agriculture must reckon with. Drones contribute to alleviating these issues by precisely identifying areas requiring water or treatments. By doing so, water usage can be reduced by an estimated 25%, furthering the cause of sustainable agriculture.

Cost savings

In a sector where profit margins can be wafer-thin, drones serve as a cost-effective ally. Early detection of potential issues allows for timely and, therefore, less costly interventions. By helping farmers make data-backed decisions, drones help avert financial setbacks, offering an ROI that far exceeds their initial cost.

The cost savings from drone technology go beyond just reacting to problems. Drones can provide insights that lead to proactive measures. By advising on agri-input use before visible crop issues occur, they can prevent the need for expensive interventions later during the crop cycle.

Weather forecasting

For a good yield, optimum weather remains crucial. Equipped with weather monitoring technology, drones can serve as weather stations in the sky, providing real-time data on the weather.

This information is invaluable for planning farm operations and responding to changing weather patterns. In India, where monsoons can be a farmer's best friend or worst enemy, having up-to-the-minute weather data is a game-changer. It allows farmers to make informed decisions about when to plant, irrigate, or harvest, ultimately improving farm resilience.

Conclusion

Drones are much more than high-tech gadgets. They are catalysts propelling agriculture into an era of increased efficiency, sustainability, and profitability.

As the Indian government shows a growing affinity for precision agriculture, drones stand to become a cornerstone of the sector. This blend of traditional farming wisdom and cutting-edge technology promises a brighter, more prosperous future for agriculture in India.

Amandeep Panwar is the Co-founder and CEO of BharatRohan.

EXOTIC VEG CROPS TRANSFORMING PULWAMA'S AGRICULTURE FORTUNES

In Tahab hamlet of South Kashmir's Pulwama district, the agricultural landscape is undergoing a remarkable transformation, all thanks to the cultivation of exotic vegetable crops like Russian Kale, Swiss Chard, Zucchini, and Lolo Rosa.

However, Pokchoi and Red Ruby have emerged as hot favorites among consumers. These crops have not only redefined the farming scenario but have also become a source of pride and economic prosperity for the local farming community.

Pokchoi, known for its vibrant yellow flowers reminiscent of mustard, was introduced to the region in 2021 by the Department of Agriculture, as stated by Farooq Ahmad Ganie, a progressive farmer from Tahab, who was one of the early adopters of exotic vegetables.

He mentioned that the crop quickly gained popularity and that this exotic broad-leaved vegetable can be grown throughout the year.

"Pokchoi takes 60 days to mature, and while it can be cultivated in open field conditions, growth is expedited in greenhouses," he said, adding that it is vulnerable to cold conditions.

Sharing his experience, he explained that seeds are sown in January, saplings are



transplanted in February, and harvest is done by March.

Remarkably, Farooq manages to achieve four crops a year, yielding up to 5 quintals of Pokchoi in just 10 marlas of land.

Farooq narrated that the crop has a high market demand and generates substantial revenue, selling at an average rate of 80 rupees per kilogram.

This newfound agricultural marvel has not only bolstered the income of local farmers but has also opened doors to various market sectors.

The vibrant Pokchoi leaves are adorning Srinagar

and gracing the tables of hotels and restaurants as they are used in a variety of dishes, including vegetables, soups, and salads.

The crop has even attracted the attention of visitors from the country and abroad who appreciate its unique taste and the health benefits it offers.

In addition to Pokchoi, another crop known as Red Ruby has also made its mark.

Similar to Pokchoi, it takes around a month to mature, with harvests taking place after 40 days.

This crop generates significant revenue, averaging 100 rupees per kilogram.

Like Pokchoi, Red Ruby is sown in January, transplanted in February, and ready for harvest by March.

The farming community, particularly those with limited land resources, has embraced Red Ruby.

Farooq said that local farmers, including Tariq Ahmad of Wasoora, Ghulam Mohammad Mir of Nowpora, Bilal Ahmad and Reyaz Ahmad of Naira, and Fahmeeda of Tumlihaal village, are other pioneers in the cultivation of Pokchoi and Red Ruby.

The dedication and hard work of these farmers have contributed to the agricultural diversity of Pulwama.

Source: www.risingkashmir.com

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AFRICA AND THE MIDDLE EAST: A POTENTIAL POWERHOUSE FOR SUSTAINABLE AGRICULTURE



❖ Nndidi Nwuneli, a Nigerian entrepreneur and expert on African agriculture and nutrition, told Arab News: "Africa is naturally endowed for agricultural excellence"

❖ Cooperative journey addresses water scarcity and climate change, with the aim of advancing sustainable farming



Nndidi Nwuneli, Nigerian entrepreneur and expert on African agriculture

ever-greater challenges, the synergy between Africa and the Middle East could not be timelier. These regions, each with its unique strengths and challenges, are united by a common goal: to secure a greener, more sustainable future for farming.

Nndidi Nwuneli, a Nigerian entrepreneur and expert on African agriculture and nutrition, told Arab News: "Africa is naturally endowed for agricultural excellence."

The statistics support her claim, as a staggering 86 percent of the world's remaining arable land is in the continent.

Abundant rainfall and a rich array of indigenous crops provide fertile ground for agricultural innovation,



Strengthening intra-regional food supply chains is a key strategy to reduce food shortages and enhance food security, says Peter Anaadumba, FAO South-South and Triangular Cooperation Officer

play a central role in enhancing agricultural cooperation.

The FAO Science and Innovation Forum 2023, held from Oct. 16-20, is a prime example of how countries from both regions can come together to explore scientific and innovative solutions to tackle global challenges, including hunger and climate change.

Peter Anaadumba, FAO South-South and Triangular Cooperation Officer, told Arab News: "Collaboration between these regions extends beyond the agricultural field, encompassing knowledge sharing, technology transfer, and financial investments, all aimed at maximizing agricultural productivity."

As global agricultural demands continue to surge and climate change presents

uniquely positioned to support the Middle East's agricultural needs.

Nwuneli envisions a partnership that transcends borders, founded on trade, innovation, and technology.

"This collaboration can serve as a bulwark against the looming challenge of food security that both regions confront. However, Africa's agricultural potential is accompanied by its fair share of challenges," she said..

Climate change, characterized by extreme weather events, poses a significant threat to Africa. In fact, seven out of the ten most climate-affected countries in the world are in this region. This grim reality underscores the urgency of finding solutions to adapt and thrive in the face of changing weather patterns.

In addition, barriers to trade and market access have long hindered the agricultural sector in both Africa and the Middle East.

"Strengthening intra-regional food supply chains is a key strategy to reduce food shortages and enhance food security," Anaadumba said.

Joint investments in infrastructure, such as transportation networks and storage facilities, can also significantly improve the distribution of agricultural products within and between the regions.

"This not only reduces post-harvest losses but also enhances food accessibility. It's a vital step in diversifying crops, making agricultural systems more resilient to pests, diseases, and market fluctuations," Anaadumba stated.

Regional organizations play a pivotal role in fostering collaboration between Africa and the Middle East.

One notable example is the Islamic Development Bank, which operates across both regions.

IsDB has been at the forefront of efforts to enhance water access and management, train smallholder farmers and herders to address climate challenges, and ensure the inclusion of marginalized groups, including women and youth.

The bank's initiatives are a testament to the power of cross-regional partnerships in addressing shared challenges.

Similarly, the Africa Export-Import Bank, based in Egypt, has been instrumental in bridging the financing gap for numerous agricultural and innovation projects.

Afreximbank's initiatives are not just about financing; they are about fostering robust cooperation between African and Middle Eastern countries and supporting long-term infrastructure projects.

Investments from Saudi Arabia and the UAE in infrastructure, irrigation, road construction, and fertilizer production are just a glimpse of what is possible when regional institutions collaborate.

"Technology and innovation are at the heart of sustainable agriculture," Nwuneli said, adding: "Both Africa and the Middle East recognize their transformative potential."

The entrepreneur went on to highlight the "cutting-edge solutions" being developed across the seeds and soil health sectors, which have led to productivity improvement and climate-smart approaches.

"These innovations are not only increasing the productivity of farmers but also enabling them to scale their operations, ensuring food security for their communities," she added.

Logistics and infrastructure development are equally vital. Improving transportation networks and storage facilities can enhance the distribution of agricultural products within and between

regions, reducing post-harvest losses and improving food accessibility.

There are already plenty of success stories of collaborative projects between Africa and the Middle East that offer valuable lessons. For instance, the UAE has supported initiatives in Liberia, Nigeria, and Zimbabwe, focusing on sustainable poultry and vegetable production, food security in conflict-affected areas, and horticulture value chains.

Qatar partnered with Somalia to improve water access and train smallholder farmers to tackle climate challenges, while Saudi Arabia has a history of supporting desert locust control in Africa, among other initiatives.

As a result, knowledge transfer between African countries and the Middle East has fostered growth and innovation, with regional institutions paving the way for collaborative research.


Nwuneli emphasizes that one common goal unites both regions: the need to leapfrog into self-sufficiency and resilience in the face of climate change.

"Achieving this ambition requires deeper collaboration, knowledge sharing, strategic partnerships, and substantial investments," she stated.

Her views are echoed by Anaadumba who underlines the role of technology and innovation as essential drivers of this transformation.

"As seeds, soil health, productivity enhancement, and climate-smart approaches are unlocking the potential for increased agricultural productivity, research institutions on both sides of the partnership are actively collaborating to leverage indigenous crops and bridge supply chain gaps," he said.

Source: www.arabnews.com



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BIO-FERTILIZERS AND CLIMATE CHANGE MITIGATION: A GREEN SOLUTION FOR AGRICULTURE

— Harshvardhan Bhagchandka



In the context of climate change, agriculture faces complex and unique problems. Crop production is directly dependent on natural resources, weather, and climatic conditions. As a result of rising temperatures, variable rainfalls, invasive pests, and more, the sector, farmers, and farm communities are facing several challenges. These effects tend to worsen as climate change accelerates, making it critical to implement mitigation strategies as soon as possible to curb its long-term impacts.

In this regard, biofertilizers have emerged as a green solution for agriculture, which can help counter the detrimental impacts of climate change. However, before delving into its significant benefits, let us explore the intricacies of biofertilizers.

Exploring biofertilizers

Biofertilizers refer to the latent or living cells of effective strains of microorganisms, which help plants grow by associating with them in the rhizosphere when the seeds are sown into the soil. It increases the supply of nutrients to the soil by the processes of nitrogen fixation, phosphate solubilization, release of phytohormones, and more, which facilitates the availability of the nutrients required for the plants to grow, increases plant's capacity to absorb nutrients, and increases biomass. When used efficiently in agriculture, they offer a healthy environment that lasts for future growing seasons.

The consistent use of biofertilizers by farmers can aid in improving crop yields. Since they are eco-friendly (natural fertilisers), they do not allow pathogens to flourish and also protect the environment from pollutants, making it a robust climate mitigation strategy. In addition, it increases soil fertility by improving the physical and chemical properties of the soil.

An eco-friendly solution

The most contributing function of the biofertilizer is a substantial reduction in environmental pollution and enhancement of agro-ecological soundness. When compared to chemical fertilizers, they are more eco-friendly and cause no harm to the ecosystem. In addition, they also enable a reduction in the use of these chemical fertilizers that impact the soil, crops, and the environment as a whole. Owing to their eco-friendly nature, the demand for bio-fertilizers has increased over the years. According to

the IMARC Group, the Indian market for bio-fertilizers stood at a whopping \$111.3 million in 2022 and is further anticipated to reach USD 221.4 million by 2028 at a CAGR of 12.5 per cent.

Improves crucial soil properties

Biofertilizers enhance the physical conditions of the soil by improving the structure and aggregation of the soil particles. Furthermore, it increases the pore spaces, water penetration, and decreases compaction, which enhances the physical properties of the soil. In terms of chemical properties, biofertilizers improve nutrient availability in the soil, making nutrient absorption easier by the roots. As a result, the soil experiences an enhanced capacity for nutrient exchange, which has a positive effect on the physico-chemical stability of the soil.

Instills several growth hormones

By replacing chemical nitrogen by 25 per cent, the biofertilizers aid in maintaining stable nitrogen (N) concentrations in the soil. The nitrogen-fixating microorganisms have a crucial role to play in enhancing the nitrogen supply as they convert atmospheric nitrogen into organic forms that can be used by plants. Biofertilisers facilitate the use of a biological Nitrogen fixation process that reduces the application of

N fertiliser, which results in a reduction of environmental risks. In addition to the process of nitrogen fixation, biofertilizers have the ability to secrete and synthesise biologically active substances. These can include the vitamins thiamine and riboflavin, nicotinic acid, pantothenic acid, and plant growth regulators such as heteroxins and gibberlins. These biologically active substances aid in modifying the nutrient ingestion of plants.

A practical mitigation solution

The adverse impacts of climate change have caused detrimental impacts on the environment, such as a rise in carbon dioxide, an increase in temperature, the depletion of natural resources, and more, which have significantly impacted agriculture. Therefore, the need of the hour is to implement robust climate change mitigation techniques that would reduce the detrimental implications for farming and farmers.

In this context, biofertilizers have emerged as a green solution that not only

improves the yield of crops but is also eco-friendly, enhances soil properties, and instills several growth hormones in the soil. As a result, it nourishes the quality of the soil, curbs environmental pollution, reduces the usage of chemical fertilizers, and guarantees appropriate nutrition delivery to the plants. Therefore, this cost-effective and easily accessible solution is a practical mitigation solution for minimising the global warming potential.

(The author is President at IPL Biologicals Ltd.)

Source: www.thehindubusinessline.com

PUNJAB AGRICULTURE MINISTER: CAN'T BE BLAMED FOR POLLUTION IN HARYANA, NCR

The state government says it cannot be blamed for the severe pollution and smog enveloping neighbouring Haryana and parts of the National Capital Region (NCR) when incidents of farm fires in the state are down by 47 per cent and the air quality in no city of the state has been recorded as "severe".

Agriculture Minister Gurmeet Singh Khudian, said defaming Punjab and its farmers for causing pollution in most parts of North India was a "deep-rooted conspiracy". He was speaking in context of the allegations levelled by the neighbouring Haryana Government, blaming Punjab for the smog that has enveloped most of North India.

"The incidents of farm fires in the state are down by 47 per cent over last year and the air quality in most parts of the state is "poor". Barring Bathinda, the air quality in the state is less than 300," he said, adding that against 24,000 incidents of farm fire recorded in the state till date last year, the number of incidents this year was down to 12,800.

Data shows that other than Bathinda, where the air quality was recorded as "severe" at 407 points early in the morning and came down to "very poor" at 375 in the evening, the air quality in all other parts of the state

was recorded as "poor" at less than 300. The AQI at the two industrial towns – Ludhiana and Mandi Gobindgarh – came down from 300 in the morning to 243 and 291, respectively, in the evening. The AQI was recorded at 178 in Amritsar, 261 in Jalandhar, 255 in Khanna and 248 in Patiala, according to the National Air Quality Index of the Central Pollution Control Board.

The Agriculture Minister said rather than blaming Punjab for causing pollution, when even the wind was blowing westwards rather than south eastwards, he would urge the Haryana Government to get a scientific analysis of the weather conditions that are carrying the smog to the neighbouring state and to Delhi done. "I assure Haryana Agriculture Minister JP Dalal of full cooperation in getting a scientific study done so that he stops making such baseless allegations against our state," he said.

The minister said this time a concerted focus on creating awareness against the practice of stubble burning affecting soil fertility and in situ stubble



Gurmeet Singh Khudian

management leading to higher yield of two quintals per acre in the next wheat crop, besides several ex situ stubble management options available to farmers, was responsible for a fall in farm fire incidents. Mostly, the incidents have been reported on very small area of plots, he said.

'Deep-rooted conspiracy'

Agriculture Minister Gurmeet Khudian said defaming Punjab and its farmers for causing pollution was a "deep-rooted conspiracy"

"I assure Haryana Agriculture Minister JP Dalal of full cooperation in getting a scientific study done so that he stops making such baseless allegations against our state," he said

Source: www.tribuneindia.com

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INTER-MANDI E-NAM TRADE FINALLY PICKS UP, UP 260% IN APRIL-OCTOBER

With more states opening up or facilitating trade of agricultural commodities on digital wholesale agri-marketing platform—electronic—National Agriculture Market (eNAM), spurt in trading among various markets within the state as well as at the inter-state level is being witnessed. In the April-October period of the current fiscal, there has been a 260% annual spike in inter-mandi trade on e-NAM to Rs 785 crore. In terms of inter-state trade, which was not happening a year ago, there has been an increase since the beginning of the year. An agriculture ministry official said while the volume of inter-mandi trade is still a small portion of total turnover of e-NAM at Rs 37,000 crore in April-October (2023-24), it indicates a gradual shift to the digital platform, being used for better price discovery by the farmers.

On Saturday the National Cooperative Consumers' Federation of India (NCCF) purchased onion from farmers in Kurnool, Andhra Pradesh using e-NAM platform for the first time. Similarly turmeric was sold for the first time at Nizamabad mandi, Telangana using the online platform to an institutional buyer in Madurai, Tamil Nadu.

An official told FE that following the request from the power ministry requesting biomass derived from paddy stubble/ crop residue to be traded on the pan India digital platform, the item has been added to the list of trade commodities on the e-NAM. The trial trade of 'raw biomass (agro-residue)' was carried out



using e-NAM in the Ambala Mandi.

While stating that the e-NAM is the only digital platform with no user charges are being levied on the transaction, the agriculture ministry has urged all the central agencies such as Food Corporation of India, farmers' cooperative NAFED and others engaged in procurement and selling of grain, pulses and other agricultural produce to use the platform for better price discovery.

Since the beginning of the current fiscal, the inter-state trade using e-NAM platform on commodities with farmers from Uttar Pradesh, Kashmir, Maharashtra, Rajasthan and Telangana selling commodities such as potato, apples, saffron, turmeric, mustard, ragi, silk cocoon, chana, soyabean and jeera, to buyers in Kerala, Gujarat, Odisha, Jharkhand, Madhya Pradesh and Tamil Nadu, sources said.

Uttar Pradesh has allowed traders from outside the state to buy potatoes, tomato, bottle gourd, bitter melon, mango, green chillies, carrot and lady finger from farmers using e-NAM platform.

Traders from outside Tamil Nadu, who have

unified licences now, procure and trade copra, groundnut, turmeric, cotton, maize, paddy, bajra and moth using e-NAM platform.

The e-NAM platform currently allows online trading in 209 agricultural, horticultural and other commodities notified by respective state governments.

At present, 1,361 mandis in 27 states and Union Territories are integrated with the e-NAM platform. Also, 17.64 million farmers, 3284 FPOs, 0.24 million traders and around 0.11 million commission agents are registered with e-NAM.

Currently, 27 states and union territories including Tamil Nadu (157), Rajasthan (145), Gujarat (144), Maharashtra (133), Uttar Pradesh (125) and Haryana (108) mandis are on e-NAM platform which was launched in April 2016.

Sources said there are estimated to be around 7000 mandis in the country and after the recommendation from mandi boards of respective states, the marketplace for agricultural produce come on board of e-NAM.

Source: www.financialexpress.com

MANY LARGE BUYERS FROM TURKEY LAND IN INDIA TO BUY BASMATI RICE; PRICES SURGE

After India reduced the minimum export price (MEP) of basmati rice to \$ 950 from \$1200 per tonne last week, many large buyers from Turkey have landed in India to buy basmati rice resulting in prices surging to \$975-\$1000 per tonne in the export markets.

Farmers from Haryana, Punjab, and western UP are now getting Rs 3900 per quintal for their basmati paddy crop (1509 variety), a Rs 700 per quintal rise within a week's time fuelled by heavy demand from the global markets for basmati rice.

"The old contracts that were kept in abeyance because of sub-\$1200 price per tonne are being shipped now. New orders are pouring in with large buyers from Turkey visiting India to pick up good volumes of basmati rice," said Vijay Setia, a basmati exporter and past president of All India Rice Exporters Association (AIREA).

On August 25, the government prohibited the export of basmati rice below \$1,200 per tonne to prevent potential instances of "illicit" shipment of regular white non-basmati rice disguised as high-quality basmati rice. It also kept the sub-\$1,200 per tonne rice contracts in abeyance and asked the Agricultural and Processed Food Products Export Development Authority (APEDA) to set up a committee to evaluate the contracts.

After several representations by the AIREA to reduce the MEP, the Union commerce and industry minister Piyush Goyal agreed to bring down the MEP to \$950



per tonne last week.

"Last week prices of basmati paddy increased by Rs 700 per quintal to Rs 3,900. It is a relief for us as we were staring at a loss since the exporters had stopped buying," said Vijay Kapoor, a basmati farmer from Karnal. However, Kapoor pointed out, the government should keep a close watch on whether the commission agents, who buy paddy from the farmers, are giving them the right price or not.

The surge in exports of basmati rice is likely to pinch the pockets of Indian consumers. Suraj Agarwal, CEO of RiceVilla, a rice marketing and exporting firm said, "As demand is increasing in the export markets after the reduction in MEP, domestic prices of basmati rice have increased by around 9 percent in the last five days. It can increase further once export contracts start being executed. We are expecting domestic prices to increase by another 10% within a month from now."

Of the total acreage of 1.7 million hectares under basmati rice, the 1509 variety accounts for about 40% of the

area. Exports of basmati rice in 2022-23 stood at 4.5 million, valued at Rs 38,524.11 crore, with the Gulf nations being the major buyers. More than 80% of basmati rice produced in India is exported.

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FARMERS SAY DON'T ALLOW FARMHOUSES ON AGRICULTURE LAND

Entrusting agriculture, revenue and fisheries departments to one minister to protect agriculture from corrupt practices, facilitating the use of traditional knowledge for bundh repairs instead of wasteful concretisation, and banning the conversion of cultivable land were among the suggestions made at the Tiswadi taluka farmers meeting.

In a meeting held at the Azosim-Mandur panchayat to gather inputs for the draft Agriculture Policy, farmers criticised the priority being given to fishing at the cost of agriculture.

They blamed revenue officials for the setback to agriculture.

St Andre MLA Viresh Borkar, Yogesh Gawas, an official from agriculture department, and Rochelle Fernandes, the Tiswadi zonal agricultural officer, were present.

"At least the two

departments of agriculture and revenue must be with a single minister to ensure accountability. Due to lopsided interests, auction of a sluice gate, which goes for Rs 2 lakh, is hiked to Rs 5 lakh (for more fish)," said president of an hoc farmers committee from Choroa, Shrikrishna Haldankar.

Former sarpanch of Navelim-Goltim, Prasad Harmalkar, suggested that the management of sluice gates and related issues be given to the agriculture department instead of the revenue department.

Others called for tenancy reforms and accountability in sluice gate auctions. "There should be more transparency in this process so that corrupt practices to promote pisciculture are controlled," said local politician Ramrao Wagh.

Considering the crores of rupees spent for repairing bundhs with concrete and



red mud, some suggested use of traditional knowledge. "The WRD must stop using unsustainable solutions. Traditional bundh makers should be registered and their knowledge tapped to restore bundhs," said Elsa Fernandes of the Khazan Association of Goa.

Mining silt could be recycled for brick- and bund-making so that fields buried in it are cleared, said Fernandes.

Activists called for a ban on agricultural land conversions. "There should be a strict ban on it and also no farmhouses must allowed," said an activist Mariano Ferrao.

Activist Michael Dias from Mercedes said that acquisition of 77,000sqm agricultural land at Patto had triggered the collapse of the adjacent khazan system. But the government is planning for Patto 2 in khazan land, which will destroy more cultivable land and nearby water channels, he said.

TUBE INVESTMENTS OF INDIA'S SUBSIDIARY, TI CLEAN MOBILITY, TO LAUNCH ELECTRIC TRACTOR IN Q1 FY25

In addition to their electric tractor venture, TICMPL has recently launched the Montra electric super auto. However, they are currently facing challenges within their supply chain. TICMPL Managing Director K.K. Paul expressed confidence that these issues are being resolved through close collaboration with their vendors to address concerns related to the printed circuit boards (PCB).

Tube Investments of India Ltd.'s subsidiary, TI Clean Mobility Pvt. Ltd. (TICMPL), has announced ambitious plans to launch its electric tractor in the first quarter of the fiscal year 2025. The company aims to achieve homologation for the electric tractor in the first quarter of the calendar year 2024, according to TII Executive Vice Chairman Vellayan Subbiah.

TICMPL has already begun preparations for the production of electric tractors, which are intended for the agriculture segment. The manufacturing facilities are being established in Chennai.

Subbiah, speaking during an earnings call, reaffirmed the company's commitment

to obtaining homologation in the first quarter of the upcoming calendar year. Following homologation, the electric tractor is expected to be available for sale in the first fiscal quarter of 2025.

The initial step in this process will be the submission of the first model, a 27-horsepower equivalent, for homologation between January and March of the coming year. Subsequently, production is scheduled to commence between April and June.

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Paul further highlighted the company's improving performance, noting that month-on-month, they are witnessing an increase in volumes. They are on track to exceed the previous month's performance this month, and they are experiencing a cumulative doubling of volumes each month.

With an order book that spans 1.5 months, TICMPL is actively expanding its dealer network to the North to enhance their market presence in the upcoming quarters. By the end of the year, the company plans to have a dealer network comprising approximately 72 to 73 dealers, compared to the current 42, ensuring that they can meet growing demand and customer expectations.

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AGRICULTURE: THE SILENT ECONOMIC REVOLUTION

The role of agriculture in shaping an economy is often understated. This sector is an integral part of a country's economic framework, contributing to its status both directly and indirectly. From providing raw materials for industries to ensuring food security, agriculture has a multi-faceted impact on the wellbeing of a nation. To comprehend the complexities and significance of agriculture to an economy, let's delve into a more detailed exploration.

The Employment Generator

Agriculture is one of the primary sources of employment worldwide, particularly in developing countries. It offers numerous job opportunities in various sub-sectors such as farming, fisheries, and forestry – thereby reducing unemployment rates and promoting economic stability.

Fueling Industrial Growth

This vital sector also fuels industrial growth, functioning as the primary source of raw materials. Grips of industries, including food processing, textiles, and chemicals, are heavily reliant on agriculture for their operational needs. The prosperous growth of these industries, spurred by agriculture, subsequently propels the overall economic status.

Boosting International Trade

The role of agriculture extends beyond national boundaries, influencing international trade too. Countries with significant



agricultural output often export their excess produce to other nations, earning foreign currency. This increases the country's foreign exchange reserves, enhances its economic stature, and improves its ability to import other essential commodities.

Preserving Environment

Finally yet importantly, sound agricultural practices contribute to preserving our environment, which indirectly affects the economy. Healthy soil and biodiversity are essential for sustainable farming. By practicing environment-friendly methods, farmers contribute to maintaining this balance, which is paramount for the sustenance of both agriculture and the economy.

In conclusion, agriculture plays a pivotal role in defining the status of an economy. Its contributions are not merely restricted to providing food and employment, but also extend to fueling industrial growth, bolstering international trade, and even aiding in environmental preservation. As such, the development and prosperity of a nation's economy are intrinsically linked with the health of its agricultural sector. Therefore, the importance of investing in agriculture, promoting innovative farming techniques and maintaining a sustainable agricultural environment cannot be overstated.

Source: www.goodreturns.in

ODISHA GOVERNMENT OFFERS FARMER SUBSIDIES OF RS 58,000 TO BOOST POTATO CULTIVATION

The state government of Odisha is taking a significant step to promote potato cultivation under the area expansion program by providing substantial subsidies to local farmers. As part of this initiative, the government plans to offer a subsidy of Rs 58,000 per hectare, covering both seed costs and plant care expenses. The Odisha Agriculture Department has set an ambitious target to increase the area dedicated to rabi potato cultivation from 5,000 hectares last year to 11,000 hectares, particularly in districts lacking functional coal storage facilities. Each district's assigned target is considered non-negotiable.

According to authoritative sources within the Agriculture Department, the estimated total cost of cultivating potatoes per hectare is approximately Rs 1.45 lakh. To support farmers, the government is offering a maximum allowable subsidy of Rs 58,000 per hectare, equivalent to 40% of the total cultivation costs.

This subsidy will be provided in two phases. First, a seed subsidy of Rs 43,875 per hectare will be released to the seed supplier, and second, a plant care subsidy of Rs 14,125 will be transferred directly to the farmers through the Direct Benefit Transfer (DBT) mode. The plant care subsidy will be disbursed after the first earthing-up, typically done around 21 days after planting the seed potato when the

plants are 15-25 cm high.

Under this scheme, farmers will only be required to cover 25% of the seed cost, with the government bearing the remaining 75% as a subsidy. Certified potato seed typically costs Rs 3,144 per quintal, and farmers will only need to pay Rs 786 per quintal at the subsidized rate. The subsidy is available for up to one hectare, and farmers will need to cover the full seed cost for cultivation on areas exceeding one hectare.

The funds for these subsidies will be allocated from the state plan under the development scheme for potato vegetables and spices. The Odisha Agriculture Department has procured 1.65 lakh quintals of certified potato seeds through the Odisha State Seeds Corporation. Notably, the Horticulture Directorate has also successfully supplied certified potato seeds for the first time in the first week of November.

In a separate effort, the Directorate previously provided a record-breaking 64,000 quintals of certified potato seeds during the kharif season of 2023 to districts like Koraput, Rayagada, and Malkangiri, which have reported a bumper potato crop. However, these regions have experienced distress sales due to a lack of suitable storage facilities. The subsidies aim to address these challenges and stimulate potato cultivation in the state.

Source: www.tractornews.in

ONION PRICES IN INDIA MAY STAY HIGH FOR AT LEAST A MONTH

Onion prices are likely to stay high for around a month due to limited supplies, while exports remain strong after the removal of a 40% export duty, making overseas shipments more profitable amid global demand.

The central government had removed the export duty, while introducing a minimum export price (MEP) to discourage onion exports.

On October 28, the Ministry of Commerce and Industry had issued a notification imposing a MEP of \$800 per tonne on onion exports till December 31. The same day, the Ministry of Finance issued a notification stating that the customs duty on export of onions was made 'nil' in 'public interest'. The export duty was imposed on August 19 and was effective till December 31.

ET first reported about under-invoicing by exporters to evade export duty, which had kept exports robust, following which, the government had imposed MEP, which was being demanded by a section of traders.

However, now, the same section of traders has approached the government on the negative consequences of export duty removal on the domestic onion market.

Why won't onion exports fall despite the imposition of

MEP?

On October 28, the Centre imposed a minimum export price (MEP) of \$800 per tonne on onion exports. The decision to impose MEP was taken following a 60% jump in wholesale prices within a fortnight. The objective of introducing MEP was aimed at curtailing onion exports, which had remained strong even after the government slapped the 40% export duty in August. Multiple trade sources had claimed that the duty failed to deter onion exports as many traders had resorted to under-invoicing to pay less duty. For instance, exports to Bangladesh took place at \$200 per tonne when the ruling market prices were above \$750 per tonne.

A section of the exporters, who had to face competition from unscrupulous traders resorting to under-invoicing, had repeatedly requested the government to bring in the MEP.

On October 28, the government finally relented and announced an MEP of \$800 per tonne. However, the irony is that the MEP is also unlikely to become a deterrent to exports. The reason? The government made onion exports duty free by withdrawing the 40% export duty that was imposed two months ago.

"Now the exports can continue freely. As one does



not have to pay a duty, traders would not have any problem in showing a higher price," said a trader, who requested not to be identified. And if domestic prices remain lower than Rs 65/kg, then the unscrupulous exporters can resort to over-invoicing.

Export of kharif onions can get a boost due to duty removal

Onion exports are likely to remain stable or decline marginally in the short term during the next 2 - 3 weeks. Dwindling availability of good quality onions from old stocks and increased availability of onions in the international market from Afghanistan and Pakistan would put a cap on export volumes for the next 2-3 weeks.

However, exports are expected to increase sharply

once new onions from the Kharif harvest start to hit the markets after Diwali. In the absence of export duty, there would not be any policy deterrence for exports.

Expected price trend in the domestic market

Although wholesale prices have reversed by 5% to 6% after MEP came into effect, market functionaries do not expect any major reduction in prices. As many wholesale markets in Maharashtra, especially those in the Nashik district, would remain closed for Diwali, a small surge in prices is likely after markets reopen post-Diwali. The next move of domestic prices would depend on the arrival of the new crop and their exports in November and December.

Source:

www.economictimes.indiatimes.com

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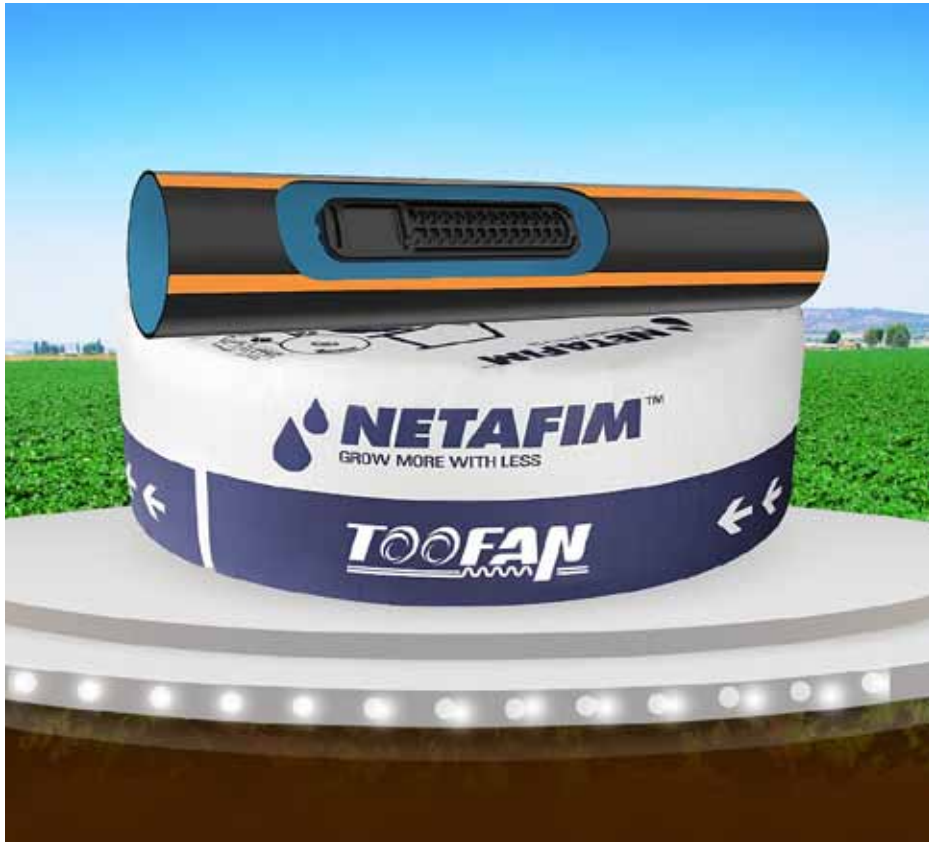
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Aims to cover 25,000 ha of land and reach 35,000 farmers across India by 2025. Engineered with revolutionary TurbuNext™ Technology for multi-season and multi-crops applications.



Toofan Drip Technology by Netafim India

Mumbai, 27 October 2023: Netafim India, a leading smart-irrigation solution provider, has launched its groundbreaking product, Toofan, an innovative irrigation technology that promises to transform farming for growers of all scales. Through this product, the company aims to cover 25,000 ha of land and reach 35,000 farmers by 2025 across India to revolutionize sustainable farming. The innovative system with best-in-category anti-clogging technology ensures optimal delivery of water and nutrients. The drip line is 40% more strong with greater tensile strength. Toofan by Netafim India is 20% more affordable than the existing and available thin wall, non-pressure-compensated (NPC) drip lines in the Indian market.

Toofan by Netafim India not only makes modern, efficient irrigation accessible to all but also offers a simplified

buying process that transcends subsidy limitations. The cost-effective drip technology is now available to farmers of all scales, from large to small holdings, regardless of subsidy eligibility. The drip line is engineered for swift deployment, allowing farmers to cover up to 10 acres in a single day. This revolutionary feature saves both time and resources.

The digital launch concluded on the social media platforms of Netafim India and witnessed the interest of 10 Lakh farmers and dealers. Mr. Randhir Chauhan, Managing Director, Netafim India and Senior Vice President, Netafim Ltd., unveiled the product during the virtual launch. Toofan by Netafim India is an economical choice engineered with revolutionary TurbuNext™ technology and offers unparalleled durability, thus helping farmers achieve better crop yields. The technology is available for any row crops on flat topographies.

Speaking about the launch, Mr. Randhir Chauhan, Managing Director Netafim India and Senior Vice President Netafim Ltd., said, "Netafim India aims to provide an affordable, high-performance micro irrigation system that not only ensures consistent and uniform yields but also aids in reducing the operational costs of farmers. As a farmer's anthropologist, we understand the dynamics of Indian agriculture and continuously work to bring solutions that meet the evolving needs of our growers. We are proud to be a part of India's agricultural growth story and committed to bring innovations that transform the lives of farmers. We are delighted to set new standards in clog resistance and enhance

Agri performance with Toofan driplines. Netafim's Toofan is set to reshape the agriculture landscape, empowering farmers to embrace modern irrigation practices without subsidy constraints and offering an unprecedented installation speed. Our revolutionary patented technology is a testament to our commitment to support one of the largest sectors contributing to Indian GDP".

Regardless of the water quality, Toofan by Netafim India provides lower flow rates with a large filtration area and ensures a consistent water flow to the crops. The TurbuNext™ dripper labyrinth moves the debris out of the dripper, thus preventing clogging. It maintains a unique geometric tooth-shaped structure that increases turbulence. The lower flow rates allow longer lateral lengths and fewer sub-main pipes and connectors. Thus, ultimately saving on system and labor costs per hectare by 20% and 25%, respectively.

This multi-seasonal system is useful for surface or subsurface (SDI) applications. It promises to usher in a new era of agricultural efficiency and empower Indian farmers for sustainable and quality cultivation. This revolutionary product is available in a convenient 600-meter bundle with a 16 mm diameter and dripper flow rates ranging from 1.0 L/H to 2.2 L/H. With Toofan, farmers will experience a remarkable 40% increase in strength, heightened tensile strength, crack resistance, high elongation properties, and enhanced UV resistance, which extends the product's lifespan.

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Netafim India is a wholly owned subsidiary of Netafim, the global leader in smart irrigation solutions for sustainable productivity. Established in 1997, Netafim India offers a wide range of micro-irrigation, greenhouse, digital farming solutions and Community irrigation projects. Netafim India with 3 manufacturing plants, over 2500 employees and an exclusive network of over 2500 dealers across all the major states have provided an irrigation system for over 1.1 million hectares of land over the years covering a wide range of crops. The company has successfully offered extensive agronomic, design, after-sales support, and Agri-extension services to ensure sustainable prosperity to over 1 million farming families to date. Netafim India is an active partner in several government projects like GGRC, APMIP and TANHODA.

For more information and details, log on:
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INDIA'S FARMERS WRESTLE WITH SHIFT TO ECO-FRIENDLY AGRICULTURE

Pathak, 44, migrated from his village in eastern Bihar state over two decades ago to work in the big city on the other side of the country, hoping to supplement his family's income reliant on wheat and rice from their 1.5-acre (0.6-hectare) farm.

His decision to leave paid off. Pathak's steady salary from the city job kept his family afloat even as crop yields dropped consistently due to the droughts and floods ravaging his farm.

It either doesn't rain or it rains so much that it floods. We get just one yield every year. It wasn't like this when I was growing up, Pathak told the Thomson Reuters Foundation.

Now he leases his field to villagers who share half of any profit with him. But he would like to go back to his land if a push towards eco-friendly agriculture helps farmers cope with worsening climate pressures and pays off financially.

Agriculture is India's biggest employer, supporting the livelihoods of 250 million farmers and informal labourers - but their work is getting harder as climate change makes living off farming difficult, pushing up debt, migration and suicides.

Worries over falling yields have driven up the use of chemical fertilisers that are stripping the soil of nutrients and fuelling agricultural emissions on a warming planet.

In response, green farming projects have taken root in India, where staple crops include rice, wheat, maize, sugarcane, cotton and groundnut. But experts say the scale and success hinges on how well the approach protects poor farmers' incomes.

If you want to sustain agriculture as the biggest employer, and want to bring in sustainable farming, first bring living income to farmers, said Devinder Sharma, an independent expert on agricultural policy.

As a nation, we need to move towards agro-ecology but these (sustainable farming projects) will only bring about cosmetic changes until you provide farmers an assured income, he added.

A government-backed guaranteed price for natural produce, subsidies to cover losses and stronger marketing channels would all help, he said.

A Tale of Two Farmers

Worldwide, rice is a staple food for more than 3 billion people while flooded paddy fields account for 12% of humanity's methane emissions - equivalent to 1.5% of total greenhouse gas emissions - according to the Asian Development Bank.

Asia-Pacific accounts for the highest emissions from agriculture, partly because of the region's rising use of synthetic fertilisers in rice cultivation, the bank says.

Farmers' incomes in India, the second-largest producer of rice globally after China, are wedded to paddy yields. That makes them reluctant to shift away from conventional methods of pumping fertilisers onto fields to raise production.

But farmer Jitendra Singh in northern India has made the switch from high fertiliser use, incentivised by the prospect of

extra income from generating carbon credits through lower-emitting methods, which can be traded on international markets.

He no longer transplants paddy seedlings into flooded fields, but directly sows them into the soil. Besides reducing methane emissions, that has cut water use, time needed for sowing and the use of chemical herbicides and fertilisers.

On a rice farm in eastern Odisha state, however, Gurcharan Mahanta seems uninterested in a regional project to promote millet, a long-forgotten crop making a comeback because it is resilient to droughts fuelled by climate change. Mahanta, 54, said his high-yielding hybrid rice variety fetched him a good price, which millet would not with a small consumer base. Growing paddy is also less labour-intensive.

I go by the market demand, he said.

Financial Problems Curb Green Shift

More than 80% of farmers in India own less than five acres - and many keep spending on fertilisers and pesticides, hoping for good yields even though they face a crushing burden of debt.

Nearly 11,000 farmers, cultivators and agricultural labourers took their own lives in 2021, averaging about 30 deaths a day, with bankruptcy the leading cause, according to government data.

In a bid to support these smallholders and make farming more climate-friendly, India is promoting organic and natural farming, encouraging diversification to cut dependence on one major crop and incentivising solar-powered water pumps for irrigation to reduce the use of fossil fuel power.

At a meeting of G20 agriculture ministers this year, Prime Minister Narendra Modi highlighted the disproportionate impact of climate change on agriculture in the Global South and said Indian farmers are taking up natural farming to revive the soil.

Our policy is a fusion of back to basics and march to the future. We are promoting natural farming as well as technology-enabled farming, he said in a speech.

Yet agricultural scientists estimate that fewer than 5% of Indian farmers have switched to sustainable farming methods, even though many are aware of the threat of global warming and the rising costs of conventional practices.

Farmers understand climate change. They worry about rain and droughts. But they will not understand sustainable agriculture until their problems are first understood, said Vikram Singh, joint secretary of the All India Agricultural Workers' Union.

Traditional Ties to the Land

Despite the challenges, sustainable farming has brought some success stories, including young people who have given up city careers in tech or pharmaceuticals to return to family farms.

But the wins are patchy - and, in some cases, the eco-friendly switch has added to farmers' stress.

In the southern Indian state of Telangana, for instance, millers are turning away



from genetically modified BT cotton in response to rising global demand for sustainable organic cotton.

But organic seeds are rare in India where BT dominates and cotton-processing infrastructure is designed for large volumes.

Addressing issues like these - and ensuring that sustainable methods boost crop yields and incomes - will be key to bringing would-be farmers like Pathak back to the land they love.

Wrapping up his day driving through the manic Mumbai traffic, Pathak said he pined for the clean air of his village, his jute bed and the farm-fresh gooseberries he enjoys on his annual vacation back home.

He hopes to return to that traditional rural life if the economics stack up and local markets for naturally grown produce thrive.

He suggested farmers could find other income sources too like selling milk to dairies with village networks,

helping them earn between harvests and protecting them from climate extremes.

Shiraz Wajih, president of the nonprofit Gorakhpur Environmental Action Group, urged farmers and agricultural scientists to work together to create solutions on the ground.

Local production of inputs for natural farming can cut costs and dependence on outside markets while creating jobs, he said. And fine-tuning farm processes suited to each region's ecology would boost acceptance of greener methods, he added.

Wajih said most farmers do not want to leave their land, as seen during COVID-19 lockdowns when migrant factory workers returned to their farms to keep them going in tough times.

People are aware of job options that can pay them better. But land is always the permanent address of farmers, he said.

Source: www.economictimes.indiatimes.com

THE DOUBLE-WHAMMY FROM INDIA'S FALLING FARM EXPORTS

India is currently grappling with two significant economic challenges, a double-whammy, if you will, emanating from the realm of its agrarian economic activities: a decline in farm exports and an accompanying increase in agricultural imports. This scenario burdens already struggling farmers, affects the country's foreign exchange reserves, and poses a major threat to India's food security in the long run.

After decades of steady growth, Indian farm exports have been declining since the year 2013-14. In 2019-20, the export of agricultural products was \$35.8 billion, a dip from \$43.3 billion in 2013-14. A considerable number of Indian farmers rely on export markets for their income, as they heavily export commodities such as Basmati rice, spices, buffalo meat, fruits, and vegetables.

This decline in agricultural exports is attributed to several factors. First, an appreciating rupee makes Indian goods costlier in the international markets, thereby reducing their demand. Second, the lack of infrastructure and adequate storage facilities often leads to a loss in the post-harvest phase, affecting the quality and quantity available for export. Furthermore, stringent quality standards set by different importing countries

have also taken a toll on India's farm exports.

Meanwhile, India's agricultural imports have been on the rise, with import of edible oil, pulses and fruits reaching \$20 billion in 2019-20. Reliance on imports for food commodities raises questions around the sustainability of the nation's agrarian economy and food security.

While the government has set an ambitious target of reaching \$60 billion in agricultural exports by 2022, achieving this target seems unlikely under the current circumstances. It is crucial therefore for India to focus on reversing this trend. The government needs to assist in improving the quality of crops, bring in reforms to boost infrastructure and reduce logistical inefficiencies, while also possibly working towards a more competitive forex strategy.

Facing this double-whammy of falling farm exports and rising imports, Indian agriculture is indeed at a critical juncture. If not addressed adequately and in a timely manner, potentially far-reaching economic consequences could be felt not just within the farming communities, but throughout Indian society.

Source: www.bizemag.com

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