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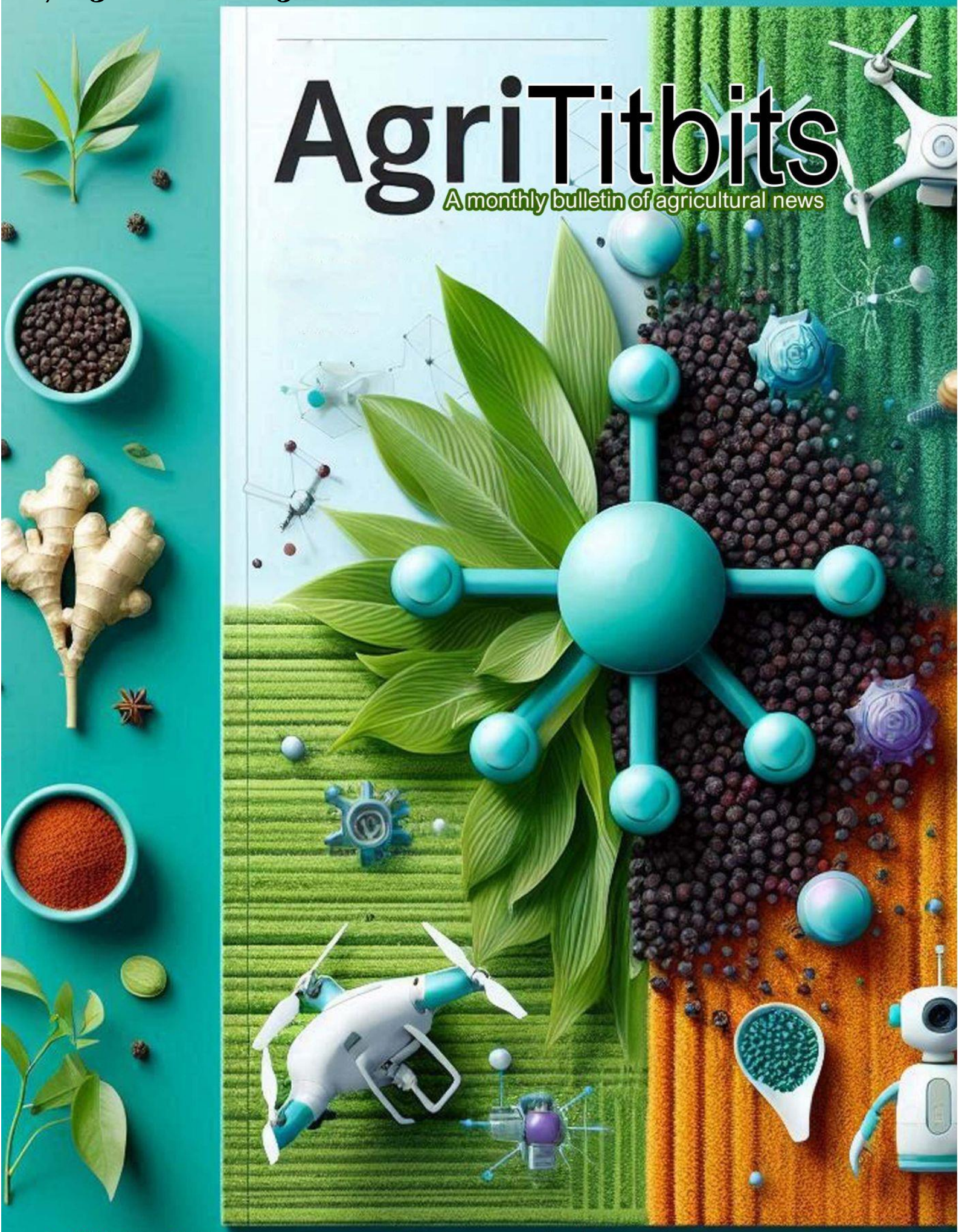
AgriTitbits

A monthly bulletin of agricultural news



Agri Titbits is an effort to collect and preserve agricultural news, especially spices, appearing in newspapers and online media.
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ICAR - Indian Institute of Spices Research

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MEGHALAYA'S WOMEN-LED SPICE REVOLUTION

17th March 2025 https://www.morungexpress.com/

In the turmeric fields of West Jaintia Hills, Meghalaya, women—who have long been at the forefront of cultivating the golden spice Lakadong—are now steering it towards the global market.

Lakadong turmeric, known for its exceptionally high curcumin content (7-14%), has gained worldwide attention for its anti-inflammatory, antioxidant, and immunity-boosting properties.

Solar dryers used for drying Lakadong turmeric in West Jaintia Hills district, Meghalaya.

The high curcumin content is reportedly unique to West Jaintia Hills, as attempts to grow it elsewhere have failed to match its levels. On March 30, Lakadong turmeric received the Geographical Indication (GI) tag.

Demand has surged both locally and internationally, with buyers ranging from health-conscious consumers to pharmaceutical industries.

However, the story of Lakadong turmeric is not just about its high curcumin content; it is about women farmers, SHGs, and cooperatives coming together and transforming the spice into a thriving industry.

For generations, women have been the backbone of Lakadong cultivation, managing everything from sowing to post-harvesting. Today, they are also leading processing units and cooperatives.

One such enterprise—Life Spices Processing Cooperative Society Ltd in Laskein village, West Jaintia Hills, 84 kilometres from Shillong—is run by 24

women members. Established in 2010, the society works with 30 villages under Laskein block, focusing on processing and adding value to Lakadong turmeric. The unit, equipped with modern machinery like washers, slicers, pulverisers, solar dryers, and a curcumin extraction unit, can process up to 200 kilograms per day. Draped in their jainkyrshah, the women farmers methodically take on nearly every task involved in the process—from harvesting to sorting, cleaning, drying, slicing, powdering, sieving, and packaging.

Recently, the cooperative leased 50 acres of land, which has been entrusted to two women-led SHGs to further boost production. The cooperative also owns 30 acres of land cultivated by an Integrated Village Cooperative Society, while its members also farm individually.

However, Life Spices is just one of many women-led processing units in the Lakadong turmeric landscape. Across West Jaintia Hills, women-run SHGs, cooperatives, small enterprises, and village councils have come together to organise production, improve processing standards, and expand markets.

Proof women can drive business growth

Being a woman at the helm of such a venture has been an empowering experience, shared Tiemonlang Shylla, Secretary of Life Spices.

Interacting with a group of farmers from villages under Athibung sub-division and Dimapur during an exposure trip organised by the Wildlife Conservation Society India (WCS-I), she shared how this success has inspired her and other women to take the lead in various activities and programmes, proving that women can drive business growth even in agriculture.

Shylla also acknowledged her husband's support, underscoring that while women take the lead, men's support is more crucial than ever.

“Being women, how can we carry huge quantities or heavy burdens without our husbands' help?” she remarked, highlighting the importance of family and community collaboration in entrepreneurship.

Shylla mentioned that the spice has even attracted the Russian military, while a trial shipment of 2,000 pouches of 100g turmeric was recently sent to Slovakia.

Mission Lakadong

The Meghalaya State Government, through its project Mission Lakadong, along with agencies like the Meghalaya Basin Management Agency (MBMA) and autonomous community-based organisations like the Eastern Region Marketing Cooperative Society (EaRMACS), has played a crucial role in supporting farmers and cooperatives by providing funding, market linkages, and technical assistance.

One game-changer has been the provision of solar-based dryers to SHGs. This low-cost drying technology has helped farmers process their turmeric more efficiently without relying on expensive electricity-based dryers.

According to Berniki, Deputy Manager at MBMA, solar dryers are cost-effective compared to electric dryers, which are expensive to operate and maintain. Most importantly, they speed up the drying process, unlike traditional sun-drying, which takes weeks. Reportedly, solar dryers reduce drying time to just a few days, allowing farmers to process and sell their crops faster while improving quality and market value.

While Lakadong turmeric has found eager buyers, one hurdle remains—the lack of a laboratory for scientific testing of curcumin content.

Even though Life Spices owns a quick curcumin content testing machine, Shylla pointed out that most buyers insist on lab-certified reports before making bulk purchases.

With no dedicated turmeric testing laboratory in Meghalaya or the North-East, Shylla sends samples outside, where each test costs between Rs 25,000 to Rs 50,000—a significant burden for small producers.

To solve this issue, she plans to set up a testing lab, which would significantly cut costs and improve efficiency for local farmers.Life Spices is also looking at

producing turmeric capsules, aiming to tap into the growing nutraceutical and wellness market, Shylla revealed.

With growing worldwide demand and a GI tag to distinguish its authenticity, the women farmers of Lakadong turmeric are setting new benchmarks for community-led agricultural success.

HOW ASSAM'S BLACK TURMERIC SPICED UP RAJASTHAN FARMERS' CRAVING

Mar 3, 2025 https://www.etvbharat.com/

Jaipur: Do you know turmeric, often called the yellow wonder, also has a blackish-blue cousin? The curiosity about the popular ingredient in your kitchen, which over the years became a global health fad, has never diminished but only grew with time. 'Haldi' has emerged as the star of all spices, which is known to improve memory, lighten the mood and make skin glow.

Black turmeric, which is scientifically known as Curcuma Caesia, is a rare medicinal plant which is mainly found in Assam, Odisha and West Bengal. According to health experts, it is even more beneficial. This black turmeric, which looks blue and purple when cut, not only acts as an immunity booster but is also being used today in the treatment of incurable diseases like cancer.

Over the past seven years, cultivators in Rajasthan have been growing it in large numbers. Farming has picked up momentum in the last two years. With awareness about Ayurveda and naturopathy increasing among the people in the country, the spice is finding its takers increasingly. Naturally, the market for black turmeric is also growing.

Grown near Kamakhya temple

Traditionally, black turmeric has been grown in West Bengal and Assam. In Rajasthan, the spice is being cultivated primarily in Jaipur, Dausa and Sikar.

Giving details, agriculture expert Atul Gupta said, "Black turmeric is a medicinal plant. It was first found in and around the mountainous areas of the Kamakhya Mata temple in Guwahati. Even today, it is used in worship and auspicious work in West Bengal and Assam region."

According to him, efforts are being made to grow black turmeric in the coastal areas of India. In the last two years, very good success has been achieved in this regard. "By successfully cultivating black turmeric in such climatic zones where the temperature is 45 to 50 degrees and the hydrogen potential of the soil is 6 to 8, it was proved that black turmeric can be cultivated very well in areas like Jaipur and Sikar," he added.

A growing market in India

Gupta said black turmeric is also effective in treating incurable diseases like cancer. "This is the reason why countries like China are now importing black turmeric, and in India also, black turmeric is being made available to many pharmacy companies. Its market is developing well. Now, the situation is such that if a farmer cultivates black turmeric, he can earn Rs 7 to 8 lakh per acre. For the cultivation of black turmeric, about 400 kg of rhizomes are required on one acre. One can easily produce 7000 kg of rhizomes. Along with black turmeric, cultivators can also plant other medicinal plants on their farmlands at the same time," he added.

He said that black turmeric looks somewhat like ginger and beetroot on the outside, but once cut, it looks blue and purple on the inside. According to Gupta, it also works as a natural balm. "Cancer properties are destroyed on eating it. Today, big companies in the country are researching it," he pointed out. It can also be sold by semi-processing and making slices, he further said.

"No processing is required to sell it. It is sold wet in the market as it does not need to be dried," he said. Gupta said farmers can get more profit at a low cost by cultivating it. " Its demand is increasing primarily due to medicinal value.

Farmers can also get good prices through export in the international market," Gupta said.

WORLD'S COSTLIEST SPICE IS 'SAFFRON', THIS NATION IS ON TOP IN SAFFRON PRODUCTION, NOT INDIA, CHINA, US, PAKISTAN, THE NAME IS...

March 11, 2025 https://www.india.com/

This crop is widely used for flavouring and colouring milk and certain sweets, especially in the valley. Among produce by farmers in Jammu and Kashmir, saffron is termed the "legendary crop", a gram of which sells for about Rs 350 in the retail market.

World's costliest spice is 'saffron', this nation is on top in saffron production, not India, China, US, Pakistan, the name is...

When we say saffron, the first thing which comes to our mind is Kashmir. This crop is widely used for flavouring and colouring milk and certain sweets, especially in the valley. Among produce by farmers in Jammu and Kashmir, saffron is termed the "legendary crop", a gram of which sells for about Rs 350 in the retail market. The threads, made of crimson stigmas and styles, are harvested. It is used as a seasoning agent in cheese, mayonnaise, meat, as well. Saffron is also used in organic cosmetics and natural medicine and is high in antioxidants. Cultivated on a on well-drained 'karewa' soil, sunlight and temperature have profound influence on its flowering. Also, at an elevation of about 2,000 metres above mean sea level.

Medicinal value

The spice is also . In Ayurveda, it is considered useful in healing arthritis, infertility, liver enlargement and fever. The institute, located in Jammu, is involved in drugs research and development. Under the Mission Atmanirbhar India, CSIR–IIIM envisages to further extend the crop on commercial scale in different non-traditional areas of the Valley.

India pioneering in Saffron production

The Palampur-based Council of Scientific and Industrial Research-Institute of Himalayan Bioresource Technology (CSIR-IHBT) has developed the production technology for Saffron and introduced its cultivation in non-traditional areas of Himachal Pradesh and Uttarakhand. Reports suggest that following successful trials in Seraj Valley since 2019, the Himachal Pradesh Agriculture Department will now start pilot projects for farmers to grow saffron in Lahaul and Spiti too.

Which nation has highest production?

But surprisingly, India is not the highest producer of this world's costliest spice. The nation which has the highest production of his spice is Iran. Iran, India, Spain, and Greece together contribute over 85% of world's saffron production. The total world production of saffron is around 300 tons per year. Though, India occupies the second largest area in terms of farming, the country produces approximately 7% of the total production. Spain, with 600 hectares of land is the third largest producer. Iran, Spain, and Greece, with intensive production technologies, have achieved higher production and productivity than India's. According to reports, the annual demand of the saffron in India to around 100 tonnes, but its average production is about 7 tonnes per year.

RESEARCH NEWS

ADD SOME SPICE: CURCUMIN HELPS TREAT MYCOBACTERIUM ABSCESSUS

March 18, 2025 https://phys.org/news

Mycobacterium abscessus is a fast-growing, pathogenic mycobacteria that can cause lung infections, and people who have respiratory conditions or are immunocompromised face a higher risk. It can also cause skin infections. The microbe is closely related to the one that causes tuberculosis and is naturally resistant to many antibiotics. Infections often require a year or more of a combination of drugs.

A study published this week in Microbiology Spectrum reports a potential way to improve treatment: Add a little spice. Researchers at Shanghai Jiao Tong University, in China, found that adding curcumin boosts the efficacy of bedaquiline, an antimycobacterial used to treat tuberculosis, in combating M. abscessus infections. Curcumin is the compound that gives turmeric its characteristic bright orange color.

"This low-toxicity natural product combined with existing drugs could pioneer new treatment pathways for resistant infections," said microbiologist Zhe Wang, Ph.D, senior author on the study. "It's particularly relevant in immunocompromised populations," who are more vulnerable to these infections.

Wang's lab focuses on innovative approaches to treating infectious disease; those approaches include repurposing known drugs and finding ways to combine natural products with known treatments. They knew that treatment for

M. abscessus often leads to poor outcomes—only about half of people who undergo treatment become non-infectious, according to previous studies.

Bedaquiline is an antibiotic used to treat multidrug-resistant tuberculosis and has shown some promise in relieving symptoms of non-tuberculosis mycobacterial infections, including M. abscessus. However, the drug does not eliminate all the infectious microbes from a sample.

The researchers, searching for ways to boost the efficacy of bedaquiline, investigated curcumin, which has long been used in traditional Asian medicine to treat a wide variety of conditions. Previous pharmacological studies suggest that curcumin has protective effects against tuberculosis.

In lab studies, the researchers found that bedaquiline alone first inhibited the growth of M. abscessus, but the bacteria began to grow again after two weeks. The combination of the drug and curcumin, however, suppressed the growth and reproduction of the bacteria, suggesting that curcumin may act as an antibiotic resistance breaker.

In mice, the researchers found that the drug combination slowed or stopped infection better than either compound alone, both in immunocompromised mice and those with a healthy immune system. "The combination demonstrates synergistic enhancement of antibacterial activity and improved infection clearance," Wang said.

The researchers are now investigating the specific molecular targets that play a role in the mechanisms behind the effects of the combination therapy. They're also evaluating the combination against other resistant mycobacterial strains and conducting safety assessments to prepare for clinical trials and, down the road, the development of new therapeutics.

"This study highlights the innovative value of combining drug repurposing with natural products," Wang said.

COMPOUND FOUND IN GINGER COULD HELP TREAT INFLAMMATORY BOWEL DISEASE: STUDY

March 11, 2025 https://www.utoronto.ca/news/

A team led by researchers at the University of Toronto has discovered that a compound present in ginger selectively binds to and regulates a nuclear receptor involved in inflammatory bowel disease (IBD).

The preclinical study, published recently in the journal Nature Communications, found a strong interaction between the compound furanodienone (FDN), which researchers have been aware of FDN for decades, and the pregnane X receptor (PXR). In particular, the study showed that FDN reduced inflammation in the colon by activating PXR, which then suppressed the production of pro-inflammatory cytokines in the body.

Jiabao Liu, a research associate at U of T's Donnelly Centre for Cellular and Biomolecular Research, said the study suggests that oral injections of FDN could be used to reduce colon inflammation.

“Our discovery of FDN’s target nuclear receptor highlights the potential of complementary and integrative medicine for IBD treatment,” he said. “We believe natural products may be able to regulate nuclear receptors with more precision than synthetic compounds, which could lead to alternative therapeutics that are cost-effective and widely accessible.”

IBD patients typically experience symptoms early in life, with about 25 per cent of patients diagnosed before the age of 20. There is currently no cure for IBD, so patients must adhere to lifelong treatments to manage their symptoms, which

include abdominal pain and diarrhea. The condition can result in significant psychological and economic consequences.

While patients with IBD have found some relief through changes to their diet and herbal supplements, it is not clear which compounds in food and supplements are responsible for alleviating intestinal inflammation. With FDN now identified as a compound with potential to treat IBD, this specific component of ginger can be extracted to develop more effective therapies.

The research also shows that FDN can increase the production of tight junction proteins that repair damage to the gut lining caused by inflammation.

Furthermore, the effects of FDN in the study were limited to the colon, suggesting no unwanted side effects elsewhere in the body.

Nuclear receptors serve as sensors within the body for a wide range of molecules, including those involved in metabolism and inflammation. PXR specifically plays a role in the metabolism of foreign substances such as dietary toxins and pharmaceuticals. The binding between FDN and PXR needs to be carefully regulated because over-activating the receptor can lead to an increase in the metabolism and potency of other drugs and signalling metabolites in the body.

FDN is a relatively small molecule that only fills a portion of the PXR binding pocket. The study shows that this allows for additional compounds to bind simultaneously, thereby increasing the overall strength of the bond and its anti-inflammatory effects in a controlled manner.

“The number of people diagnosed with IBD in both developed and developing countries is on the rise due to a shift towards diets that are more processed and are high in fat and sugar,” said Henry Krause, principal investigator on the study and professor of molecular genetics in U of T’s Temerty Faculty of Medicine. “A natural product derived from ginger is a better option for treating IBD than current therapies because it does not suppress the immune system or affect liver function, which can lead to major side effects.

"FDN can form the basis of a treatment that is more effective while also being safer and cheaper."

The research was supported by the Canadian Institutes of Health Research; Agence Nationale de la Recherche SYNERGY; Key-Area Research and Development Program of Guangdong Province, China; U.S. National Institutes of Health; National Natural Science Foundation of China; Natural Sciences and Engineering Research Council of Canada and New Frontiers in Research Fund.

DRY EYES? HALDI COMPONENT LIKELY TO HELP

Mar 16, 2025 https://timesofindia.indiatimes.com/

New Delhi: Oral administration of bio-enhanced curcumin, the active component of turmeric or haldi, offers a reliable and safe therapeutic approach for treating mild to moderate dry eye disease (DED), which occurs when tears aren't able to provide adequate lubrication for the eyes. This was revealed in a study conducted by All India Institute of Medical Sciences. The research, published in Indian Journal of Ophthalmology, indicates positive outcomes, showing improvements in tear film stability, lipid layer thickness, tear meniscus height and reduced bulbar redness. Doctors explain that the condition involves both reduced tear production and compromised tear quality. Bio-enhanced curcumin improves the fundamental quality of the tear film, allowing tears to remain in the eyes longer, alleviating symptoms.

Researchers stated that curcumin had limited absorption in the body, but various methods existed to improve its uptake. Being an over-the-counter food supplement, it possesses strong anti-inflammatory properties that help reduce inflammation throughout the body. As dry eye is fundamentally an inflammatory condition, the study demonstrated that curcumin

supplementation led to improvement in the symptoms.However, questions persist regarding the duration of these benefits and whether continuous usage is necessary for maintaining the improvements. A follow-up study is currently in progress to address these queries.Dr Tushar Agarwal, professor of ophthalmology and research team member, explained that for effective treatment, the precise dosage optimisation of curcumin, which made up only 5-10% of haldi by weight, was essential.Raw haldi has poor absorption in the stomach, and consuming large quantities is not feasible. The use of bio-enhanced curcumin increases its absorption capability by seven to eight times, leading to better effectiveness. Clinical observations demonstrated improvement in dry eye disease symptoms with this enhanced formulation.The research team included Dikshit Kapil, Aafreen Bari, Namrata Sharma, Thirumurthy Velpandian, Rajesh Sinha, Prafulla Maharana and Manpreet Kaur from AIIMS.A double-blind, placebo-controlled trial at the hospital involved 40 mild to moderate patients, divided into two groups. The predominantly young adult participants suggest the disease affects younger populations, possibly due to modern lifestyle factors and screen exposure. After three months, the curcumin group showed significant improvements in ocular surface disease index scores, tear metrics and reduced eye redness.DED manifests as persistent ocular surface inflammation with symptoms, including stinging, burning, light sensitivity, redness, mucus formation, contact lens difficulties, night driving issues, excessive tearing and vision problems.Current treatments primarily involve lubricating drops and anti-inflammatory medications.

NEW PADDY VARIETIES IN MAKING TO REDUCE UREA USE BY 50%: IRRI SCIENTIST

March 05, 2025 https://www.thehindu.com/

Use of urea in cultivation of paddy in the coming years is expected to come down by almost 50% as new varieties of paddy - being developed with half of the urea being used now - without impacting the yield would become available, said Ajay Kohli, Deputy Director General (Research) of the International Rice Research Institute (IRRI), Philippines.

Speaking at a seminar on “Rice Research for Better Future” organised by Professor Jayashankar Telangana Agricultural University (PJTAU) in Hyderabad on Tuesday (March 4, 2024), he said intense research was in progress in developing new paddy varieties that would consume very less urea, the nitrogen-rich fertilizer, without affecting the yield.

Such varieties would also improve soil health as also that of human health as the fertilizer residue both in soil and in the grain was harming humans, he said adding that IR-8 and IR-64 varieties developed IRRI were very popular in the Asian continent including in India. Such high-yielding varieties had helped countries such as India to achieve food security by scaling up production largely.

Professor of Practice at PJTAU Samarendu Mohanty, a world food prize award winner, said there was a need to encourage paddy cultivation to meet the needs of the South-East Asian countries as it would also help improve farmers’ income. Establishment of modern technology rice mills for quality production of rice would also help improve farmers’ income, he felt.

Director of Indian Rice Research Institute, Meenakshi Sundaram, Director (Research) of PJTAU Balaram and others also spoke. Later, Secretary (Agriculture) M. Raghunandan Rao felicitated Dr. Kohli in the presence of Dr. Mohanty, Vice Chancellor Aldas Janaiah and others.

BIODIVERSITY

DECLINING POLLINATOR DIVERSITY THREATENS BIODIVERSITY AND FOOD SECURITY

08/03/2025 https://www.yourweather.co.uk/

Pollinator numbers worldwide have plummeted in recent decades. It is estimated that globally we have lost 25% of bee species since the 1990's. In the UK, pollinator distribution has declined 22% in the last 50 years. In September 2024 Butterfly Conservation declared a butterfly emergency after the results of their Big Butterfly Count found that 81% of butterfly and day flying moth species had experienced a decline in just one year, with overall abundance falling by approximately 40% in the same time.

Pollinators provide crucial ecosystem services, and are particularly vital for agriculture with approximately 75% of global food crops, and 90% of wild flowering plants depend on animal pollination. As well as impacting biodiversity, the loss of pollinator species threatens food security, which could result in major food price increases if we have to rely on pollinating our crops by hand.

Despite pollinator importance to agriculture, harmful pesticides are partially responsible for pollinator declines. For the first time this year, the UK

government has followed through on a ban of bee-killing neonicotinoid pesticides by denying an emergency application for their use, which will help to support pollinator populations. Habitat loss and fragmentation, as well as climate change are also major components threatening pollinators.

Impact of pollinator diversity loss

Researchers at the University of the Basque Country recently conducted a study to investigate the impact of declining pollinator diversity on cultivated crops and wild plants. Scientist Maddi Artamendi says “In most of the studies conducted on this issue across the world, plants were found not to bear fruit if no pollinator was present. Studies of this type have been mostly conducted on crop species, but that does not give a true picture, since the diversity of pollinators is going to decrease, is already decreasing, but is not going to disappear completely. What is more, wild plants were also taken into consideration as well as crop plants.We wanted to approach the subject from a more realistic perspective”.

Researchers from the University of the Basque Couontry carried out a meta-analysis investigating the impact of pollinator diversity loss on plant success. Photo by Mazz Cummings

Researchers carried out a meta-analysis, a type of study that combines data from several published studies, in the case of this investigation 207 studies from 46 countries, to identify broad patterns. “Meta-analysis gives you a very global view,” says Artamendi. She continues “to find out where the most research has been done, in which countries and climates, on which types of plants, etc. And that way you can see where the gaps may be, where the biases are.”

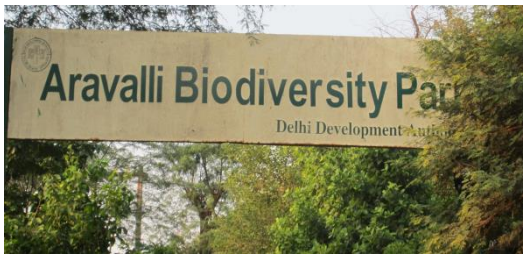
Artamendi explains “We analysed research done across the world. We had to bear in mind that there are different varieties of plants depending on the climate, that the influence on one plant or another may have been different, and how

large the sample was, etc. We took into account many variables so that all the pieces of research could be compared, and that is how we achieved a real, quantifiable result."

The results of this meta-analysis show that pollinator loss negatively impacts plant reproduction, affecting fruit quantity, seed number, and fruit weight, particularly for wild plants. It also highlights that self-pollinating plants also benefit from pollinators, emphasizing the importance of pollen exchange. Protecting pollinators is vital to protecting ecosystem health and functioning, as well as safeguarding biodiversity and food security. More research is crucial to learn more about how we can protect our precious pollinators.

NEW DELHI TRANSFORMS DEGRADED LANDS INTO BIODIVERSITY PARKS

19 Mar 2025 https://news.mongabay.com/



New Delhi, India's capital, struggles with numerous environmental challenges, including extremely poor air quality during winter and heat waves in summer. But it also offers a hopeful example of urban ecological restoration: the city has created seven "biodiversity parks" on previously degraded land, reports contributor Nidhi Jamwal for Mongabay India.The Aravalli Biodiversity Park (ABP), a 280-hectare (692-acre) park located near an upscale neighborhood, is now a thriving forest of native plants. It's become a popular spot for walkers and an educational hub for school and university students. However, until the early 2000s, the area was heavily degraded by intensive sand mining. Invasive plants like Prosopis juliflora, a type of mesquite, took over

the entire landscape, said M. Shah Hussain, the scientist who heads the ABP restoration team.

The Delhi Development Authority (DDA), along with the University of Delhi, began restoring the mined area in 2004. Today, three previously abandoned deep mining pits serve as conservatories for butterflies, ferns and orchids.

"Looking at the green cover and forest sprawl now, it is hard to imagine that this portion of the Aravalli was a degraded wasteland pockmarked with abandoned mining pits two decades ago. There were piles of debris [mining waste] everywhere," Hussain told Mongabay India.

A second site, the Neela Hauz Biodiversity Park, is home to a lake that was once a dumping ground for untreated sewage; today, it's been restored as wetland ecosystem. The 3.88-hectare (9.6-acre) biodiversity park has a "constructed wetland" that treats wastewater before it flows into the lake, said Dinesh Albertson, a field biologist with the park.

"Natural processes of aeration and plants/grasses are used to treat polluted water, without any use of machinery or electricity," Albertson told Mongabay India.

The five other biodiversity parks in New Delhi are Yamuna, Tilpath Valley, Tughlaqabad, Northern Ridge (Kamala Nehru Ridge) and South Delhi (Kalindi).

All seven parks were restored by the DDA and the University of Delhi and together span 820 hectares (2,026 acres).

Given the city's environmental challenges, including air pollution, heat waves and floods, these greening efforts need to be expanded upon, experts told Jamwal.

"Green urban commons should not be seen merely as beautification projects," Akshay Kaul, a New Delhi-based landscape architect, told Mongabay India. "We need a paradigm shift in how we view open spaces, urban forests, and biodiversity parks. They must be seen through the lens of climate resilience."

Hussain agreed that biodiversity parks "are essential for building climate-resilient cities."

"For instance, Neela Hauz acts like a sponge, holding excess water and releasing it slowly," he said. "When planning cities, we focus on basic infrastructure like roads, drains, and water supply. Similarly, biodiversity parks and urban forests should be seen as fundamental green infrastructure."

This is a summary of "Creating urban biodiversity parks from degraded lands" by Nidhi Jamwal for Mongabay India.

STUDY FINDS SEVERAL RARE SPECIES IN VELLAYANI LAKE

29 Mar 2025 https://www.newindianexpress.com/

An academic study by a team of students revealed presence of several rare and endangered species, including endemic fish varieties and aquatic plants, crucial for maintaining Vellayani Lake's ecological balance.

The students from Marian College of Arts and Science conducted the comprehensive biodiversity study at Vellayani Lake- one of the largest freshwater lakes in the state. The research led by the students aims to shed light on the rich flora and fauna in Vellayani lake - an ecological hotspot.

The study documented a wide range of species including aquatic plants, birds, fish, and other organisms that thrive in and around the lake. According to the research team, the findings highlight the ecological importance of Vellayani Lake and the urgent need to implement conservation measures to safeguard its biodiversity.

The research study was conducted by students - Hajara, Archa, Nandhana, Malavika and Mayookha - under the guidance of assistant professor of Department of Zoology Sheema S H. "Vellayani Lake serves as an important

sanctuary for both migratory and local bird species, making it a key location for biodiversity conservation.

We hope this research will raise awareness about the importance of conserving the lake's biodiversity and lead to stronger conservation policies at local and state levels," said project leader Hajara. Preliminary findings of the study revealed the presence of several rare and endangered species including endemic fish varieties and aquatic plants crucial for maintaining the lake's ecological balance. The study highlighted the growing concerns on the invasion of water hyacinth which is disrupting local ecosystems and threatening biodiversity.

The study emphasised the impact of human intervention and growing pollution levels, spread of invasive species and increasing threats posed by urbanisation and agricultural activities.

The students are gearing up to present the report at the upcoming environmental awareness conference and will be shared with experts and environmentalists. The team also aims to collaborate with authorities and conduct awareness sessions for the local community.

TN GOVT DECLARES KASAMPATTY SACRED GROVE AS BIODIVERSITY HERITAGE SITE

28 Mar 2025 https://www.thenewsminute.com/

The Tamil Nadu government has officially declared the Kasampatty (Veera Kovil) sacred grove in Dindigul district as a Biodiversity Heritage Site (BHS), making it the second such site in the state after Arittapatti in Madurai.

The Forest Department announced the notification on Thursday, publishing it in the Tamil Nadu Government Gazette under the provisions of the Biological Diversity Act, 2002.

Located near the Alagarmalai Reserve Forest, the Kasampatty sacred grove spans 4.97 hectares and is surrounded by lush mango plantations. This ecologically significant area acts as a vital green bridge, supporting environmental balance and biodiversity while also serving local religious and cultural practices.

Biodiversity heritage sites are designated areas rich in wild and domesticated species, home to rare and threatened flora and fauna, and notable for their ecological and evolutionary value.

The Veera Kovil sacred grove has long been revered by local communities, who worship the deity 'Veeranan' at the temple within the grove. Beyond its spiritual significance, the grove plays a key role in climate regulation and biodiversity conservation.

According to the official press release, the site hosts an impressive variety of species - 48 plant species, 22 shrubs, 21 lianas (woody vines), and 29 herbs.

It also shelters more than 12 species of birds, along with small mammals, reptiles, and numerous insects, highlighting the grove's genetic richness.

The notification follows a resolution passed by the Reddiyapatty Panchayat Council, aimed at protecting the land and ensuring continued public access to the Veera Kovil Temple.

The declaration was made upon the recommendation of the Dindigul district collector and with support from the Tamil Nadu biodiversity board and local authorities.

This designation comes more than two years after Tamil Nadu's first BHS recognition in November 2022, when the government declared Arittapatti and Meenakshipuram villages in Madurai district as the state's first Biodiversity heritage site.

The Arittapatti BHS covers a total of 193.43 hectares - 139.63 hectares in Arittapatti village (Melur block) and 53.8 hectares in Meenakshipuram village (Madurai East taluk).

Arittapatti is ecologically and historically significant, home to over 250 bird species, including key raptors like the Laggar Falcon, Shaheen Falcon, and Bonelli's Eagle.

The region also supports diverse wildlife such as the Indian Pangolin, Slender Loris, and pythons.

Arittapatti's seven surrounding hillocks form a natural watershed system that recharges 72 lakes, 200 natural springs, and three check dams.

Among them is the Anaikondan tank, constructed during the Pandiyan dynasty in the 16th century.

To safeguard biodiversity and preserve cultural and architectural heritage, the Tamil Nadu government designated both Arittapatti and Kasampatty as Biodiversity Heritage Sites under Section 37 of the Biological Diversity Act, 2002.

CLIMATE CHANGE

HOW CLIMATE CHANGE AFFECTS INDIA'S WHEAT PRODUCTION

March 10, 2025 https://www.thehindu.com/

India recorded its warmest February in 124 years this year. The India Meteorological Department has already raised an alarm for March, saying that the month will experience above normal temperatures and more than the usual number of days with heat waves. The period coincides with the beginning of India's wheat harvest season, and extreme heat poses a grave threat for the country's second-most consumed crop, after rice.

Wheat in India

In India, wheat is primarily grown in the northwestern parts of the Indo-Gangetic plains. Primary producers include the States of Uttar Pradesh, Punjab, Haryana, and Madhya Pradesh. Wheat needs a cooler season to grow, and the crop is usually sown between October and December. It is harvested between February and April in the rabi crop season.

The Indian government set a wheat procurement target of 30 million tonnes for the 2025-2026 rabi marketing season, news agency PTIreported in January. The lower procurement target comes despite the agriculture ministry aiming for a record wheat production of 115 million tonnes in the 2024-2025 crop year (July-June), the report added.

In 2024-2025, government wheat procurement was recorded at 26.6 million tonnes. While this exceeded the 26.2 million tonnes procured in 2023-2024, it fell short of the 34.15 million tonne target for the year.In May 2022, India had prohibited wheat exports. This was shortly after Russia invaded Ukraine, a major wheat-producing country, which disrupted international availability of the food grain and triggered a global price hike.

Heat and wheat

Climate variability itself is not a new phenomenon, but it catches our attention when the crop growth season overlaps with heat wave conditions, Sandeep Mahato of the M.S. Swaminathan Research Foundation (MSSRF), Chennai, told The Hindu.

A 2022 study in the International Journal of Molecular Sciences noted that increasing global warming is causing heat stress that "triggers significant changes in the biological and developmental process of wheat, leading to a reduction in grain production and grain quality".

According to the paper's authors, heat stress is known to affect the growth and development of wheat by altering "physio-bio-chemical processes such as photosynthesis, respiration, oxidative damage, activity of stress-induced hormones, proteins and anti-oxidative enzymes, water and nutrient relations,

and yield-forming attributes (biomass, tiller count, grain number and size) upon exposure to temperatures above the optimum range".

Stages of wheat growth

According to the UN Food and Agriculture Organisation, stages of wheat growth are defined based on how different organs of the plant develop. This can be broadly grouped into four stages:

(i) Germination to emergence: This includes the growth of the seed until the seedling breaks through the soil surface and the first leaf emerges.

(ii) Growth stage 1: Steps from emergence to double ridge. Shoots appear, and the plant growth shifts focus from producing primordial leaves to flowering structures called spikelets.

(iii) Growth stage 2: This stage lasts from double ridge to anthesis. This is where the focus of the plant shifts from vegetative to reproductive stage. This is also one of the stages where the plant is comparatively more susceptible to heat stress.

(iv) Growth stage 3: This stage includes the grain-filling period, from anthesis to maturity.

According to experts, the real problem starts with the oceans. The Indian Ocean is warming at an accelerated rate. A 2024 study conducted by scientists at the Indian Institute of Tropical Meteorology, Pune, noted that the Indian Ocean will likely be in a "near-permanent heat wave state" mainly as a result of global warming by the end of the century.

The frequency of marine heat waves is expected to increase tenfold, from the current average of 20 days per year to 220–250 days per year, the study added.

A warming Indian Ocean will in turn alter India's monsoon, on which most of the country's agriculture depends. For example, the kharif or summer crop season is starting and ending late, which inevitably delays the beginning of the rabi season.

Wheat is a rabi crop. If its sowing starts late, the later stages of plant growth will coincide with early heat waves in India. February 2025 was warmer than usual, and similar trends have been predicted for March. This is also the peak season for wheat harvest, and ideal temperature in later stages of the plant's growth should not cross 30º C.

"High temperatures cause early flowering and faster ripening, shortening the grain-filling period. This results in lighter grains with lower starch accumulation, reducing the total wheat output," Prakash Jha, assistant professor of agricultural climatology at the Mississippi State University, told *The Hindu*. "Extreme heat causes wheat to develop higher protein content but lower starch, making the grain harder and affecting milling quality. Farmers may face lower market prices due to reduced grain weight and quality issues," he added.

Low crop yield also tends to make farmers desperate and result in overuse of fertilisers, fungicides, etc., Nikhil Goveas, lead climate advisor with the Environmental Defense Fund, told *The Hindu*. "Higher but inefficient use of resources is another cascading effect of heat-stress challenges in crops."

Adaptation and mitigation

Food security is central to the adaptation and mitigation strategies officials use to lower the heat stress on wheat crops.

"Wheat is … important for farmers because it can be consumed immediately, so part of the produce is always saved for household consumption," Goveas said.

Farmers rely on older varieties of the crop because accessibility is a challenge, with problems related to the supply chain, costs, etc. Climate-resilient varieties are important, but they are not a silver bullet solution to the challenge, Goveas added: "The problem is a deeper challenge of the climate crisis on our food systems. The earth is getting warmer. We need to think about not just one crop but all crops: get timings right, have our information and weather systems

updated with the knowledge of what to expect, and undertake mitigation efforts against the challenges."

"The larger question here is to be able to guarantee food security," Mahato of MSSRF Chennai said. "We have to focus on addressing yield gaps. This ties in the issue of efficient management of resources like fertilisers, pest control, etc."

According to Mahato, immediate policy support to farmers to deal with heat stress effects on wheat can be in the form of compensation, but there are more long term solutions that need to be incorporated into our agricultural practices.

"Changes in agricultural management strategies to support early sowing of crops in areas that are likely to see early heat waves, or introducing improved yield varieties with shorter growth duration are some policy changes that can alleviate heat stress on wheat," he added. "There is no compromise that can be done on improving production and that should be the central goal to the adaptation question."

"Policymakers must take a multi-pronged approach, combining scientific research, financial support, technological solutions, and farmer education to protect wheat crops from rising heat stress," according to Jha. "This includes promoting heat-resistant wheat varieties, adjusting sowing dates, financial support and crop insurance, and weather monitoring and advisories."

CULTIVATION OF ALTERNATIVE GRAINS INSTEAD OF RICE CAN MAKE THE FIGHT AGAINST CLIMATE CHANGE EASIER: STUDY

12 Mar 2025 https://www.downtoearth.org.in/

Traditional rice farming in India is now not only proving to be an obstacle in increasing farmers' income, but the impact of climate change has also made it an even more risky proposition. A recent study has claimed that if farmers in

India turn to alternative cereals such as millets, maize and sorghum instead of rice cultivation, they can not only reduce the production loss caused by climate change but can also increase their income.

The study, published in the journal Nature Communications, suggested that optimal allocation of rice area to alternative grains could reduce climate-induced production losses by up to 11 per cent. Also, a shift to alternative grains could increase farmers' net profits.

According to the study, farmers select crops and decide to grow them by looking at the fluctuations in the price of the respective crop. That is, the price of the crop and the decision to grow it are deeply connected. The study suggested that the transition from rice to other crops could be faster if farmers were given economic incentives to switch.

The joint study conducted by institutions from the US, India and Italy supported the shift from rice to alternative grains, stating that Indian farmers always prefer rice due to its economic aspect. However, rice production is highly affected by climate change. On the other hand, cereals such as millets, maize and sorghum are climate-resistant and may also be economically viable in the long term.

The study was conducted by Dongyang Wei from the Department of Geography and Spatial Sciences, University of Delaware, US; Leslie Guadalupe Castro from the Department of Ecology, Evolution and Environmental Biology, Columbia University, New York, US; Ashwini Chhatre, Associate Professor and Executive Director, Bharti Institute of Public Sector Department, Indian School of Business, Hyderabad, India; Marta Tuninetti of the Department of Environment, Land and Infrastructure, Politecnico di Torino, Italy and Kyle Frankel Davis of the Department of Geography and Spatial Sciences at the University of Delaware, US.

According to the study, farmers' sowing decisions for alternative cereals are very sensitive to price changes. Thus, it provides an important point for policy intervention.

"Our research shows that by strategically reducing rice cultivation and increasing cultivation of alternative grains, India can achieve greater stability in grain production and reduce the cost of farmers," said Dongyang Wei, lead author of the joint study. "This can improve profitability. And this can be achieved without affecting overall calorie production," Wei added.

Ashwini Chhatre, another author of the study, said, "This research emphasises that policymakers need to implement policies that promote the cultivation of climate-resilient crops while taking into account the economic factors influencing farmers' decisions."

The study also points out that it is important to address current pricing structures, which often favour rice cultivation due to government support policies. The researchers suggested that well-designed crop pricing schemes and incentives for climate-resilient crops could be effective tools to promote a more sustainable agricultural system.

The study findings provide valuable insights for policymakers given India's heavy dependence on rice, and the need to enhance the resilience of India's food systems to the increasing variability of climate change.

HOW CLIMATE CHANGE HURTS MAHARASHTRA'S ALPHONSO FARMERS

Mar 16, 2025 https://www.indiatoday.in/

In what comes as bad news for mango lovers, the famed Alphonso mango that grows on the Konkan coastline in Maharashtra will see its production fall to just around 35 per cent due to climate change. Cultivators say consumers will be able to purchase the fruits from March end to the end of April.

"The mango season should have begun by February-March, but it is yet to happen in the true sense as the first flowering failed and the second is expected to yield fruit," says Ajit Gogate, former MLA and chairman of the Devgad Taluka Amba Utpadak Sahakari Sanstha Maryadit. "The third phase of flowering is expected to be less." While they had expected the production to fall by around 15 to 20 per cent compared to last year, the fall is even more due to excessive heat impacting the flowering and the fruit, Gogate adds.

"Mango production is expected to be lower this year. Flowering in all three stages is low," says Vidyadhar Joshi, who owns a mango orchard in Devgad in Sindhudurg district, where the mango trees flower around December, January and February, and the fruits ripen for plucking in March, April and May, respectively. The first flush of flowering accounts for 20 per cent of the mango production, while the other two make up for about 40 per cent each

As the mango cultivators had harvested a bumper crop last year, the trees that bore substantial fruits then were expected to give a lower yield this time, around 60 to 70 per cent, considering the "alternate bearing" pattern. However, the actual yield is much lower at around 25 to 30 per cent and that too will last for just a month, Joshi rues. "This is the lowest production in the past 20 years," he says, adding that mangoes were likely to come to the market between March-end and April-end.

Dr Vivek Bhide, president, Konkan Hapus Amba Utpadak Aani Vikrete Sahkari Sanstha, Ratnagiri, too notes that mango production has seen an "unprecedented low". "Production will be in the range of 30 to 35 per cent," he says, blaming climate change such as a rise in winter temperatures and lack of wind. Moreover, the farmers may not get remunerative prices as the mangoes will hit the market for a month beginning March-end. At present, Alphonso

mangoes are being sold for around Rs 1,600 per dozen in retail markets, and the price fluctuates depending on the size and quality.

Production of mangoes in Karnataka, Kerala and Tamil Nadu was good, says Bhide. Mangoes sold in other states are often passed off as Alphonso. In 2018, the Geographical Indication Registry had conferred the Geographical Indicator (GI) status to Alphonso, associating it exclusively with five Konkan districts: Sindhudurg, Ratnagiri, Raigad, Thane and Palghar. Devgad Taluka Amba Utpadak Sahakari Sanstha Maryadit, a cooperative federation of mango cultivators, was granted the registered proprietor status by the GI registry, along with the Director of Research, Dr Balasaheb Sawant Konkan Krishi Vidyapeeth, Konkan Hapus Amba Utpadak Ani Utpadak Vlkrete Sahkari Sanstha and Kelshi Parisar Amba Utpadak Sahakari Sangha Maryadit.

As the running joke goes, the quantity of Alphonso sold in the market is several times more than that which is grown on Maharashtra's Konkan coastline. Mangoes cultivated in Karnataka and Gujarat are often mis-branded and sold at higher rates as the prized Ratnagiri or Devgad Alphonso or 'Hapus' (as the Alphonso is popularly known). The cultivators of the Alphonso mango say this counterfeiting has prevented them from getting a remunerative price for their produce and affected their reputation.

This has made mango farmers in Devgad turn to technology like affixing single-use, tamper-proof stickers with an embedded code on the fruit to weed out pretenders. Since last year, Bhide's society has urged farmers to use QR codes on fruits or boxes, which enable consumers to know the name of the grower, location of the orchard and date of plucking. Cultivators lament that the government has confined its role to issuing GI certification, but is doing little to enforce and implement the GI regime, promote GI products, upgrade them and crack down on violations.

The authentic Alphonso grown in the Konkan has a thin skin, a distinctive aroma, a small nose and thick, fibreless pulp. It is grown on 1,26,411 hectares

in the five districts of the Konkan. Coupled with tourism, the trickle-down effect of this horticulture is said to have transformed the Konkan, which was once seen as a "money order economy", run on money sent home by men working blue-collar jobs in Mumbai and nearby areas.

The size and taste of the mangoes cultivated in the Konkan are said to be different from those grown in other regions such as Bhimshankar and Junnar in Pune, and in Karnataka and Gujarat, due to the difference in climatic conditions and the nature of the soil.

The mango is said to have originated in India. The Alphonso derives its name from the Portuguese general Alfonso de Albuquerque. The Portuguese introduced this variety through grafts on mango trees. The polymath D.D. Kosambi says the Jesuit priests began mango grafting in the 16th century. Soon, it travelled to the Konkan. In Goa, the people called this mango 'Aphoos' and in Maharashtra it was pronounced as 'Hapus'.

ORGANIC FARMING

HUSBAND'S CANCER PROMPTS DELHI RESIDENT TO TAKE UP ORGANIC FARMING IN UNA, BECOME AGRO ENTREPRENEUR

Mar 09, 2025 https://www.tribuneindia.com/

Odds were heavily stacked against Reeva Sood when she decided to delve into organic farming about seven or eight years ago. She was already in her late fifties, had little knowledge of farming, had to shift from Delhi to a village in Una district and the land where she planned to try organic farming was barren and covered with cactus.However, it took her just a few years to overcome these challenges and

establish herself as the leading woman agro entrepreneur of the region. She is the first in the state to grow dragon fruit on a large scale and intercrop it with a variety of medicinal plants like asparagus, holy basil, aloevera, etc. “We need to go beyond the conventional idea of farming, use technology and schemes and subsidies available to become successful in our ventures,” says 65-year old Reeva while reflecting on her inspiring journey.

Her husband Dr Rajeev Sood, who was a cancer specialist at Ram Manohar Lohia Hospital in New Delhi, was diagnosed with cancer and this shocking development turned her towards organic farming. She realised that chemical-laden food, along with modern lifestyle, was a big reason behind the increasing incidences of cancer and other diseases. Once she made the decision to take up organic farming, the big question was what to grow. She opted for medicinal plants and dragon fruit on the land that had been barren for more than 50 years.

“The thick cover of cactus on the land suggested that dragon fruit, a variety of cactus, will be suitable. And my decision proved right as I had a big dragon fruit farm, intercropped with medicinal plants, ready within two years,” she added.

The quick success came on the back of her scientific and technology-oriented mind and the knowledge gathered from various sources. She studied local conditions, tested the soil, attended several training programmes and went to several government offices to avail of relevant schemes and subsides. “All these efforts led to what’s now a thriving organic farm in a short period,” she said.

Reeva took another unconventional route when her dragon fruit plants started bearing fruit. Instead of selling the fruit, she decided to go for value addition and produced a healthy concoction of dragon fruit and medicinal plant. “I started a company and launched the juice under the brand name of Dragona. We are working towards introducing a few more products shortly,” says Reeva. Besides, the planting material from her nurseries is distributed in several states by government agencies.

Taking a cue from her success, many other farmers have started planting dragon fruit in Una. “I am glad that I can inspire other through my efforts,” says the successful agro entrepreneur.

UP GOVT TAKES MAJOR STRIDES TO BOOST CHEMICAL-FREE NATURAL FARMING

March 1, 2025 https://www.thestatesman.com/india

The Uttar Pradesh government has prioritized the welfare of farmers and the promotion of sustainable farming practices.

Alongside expanding natural farming initiatives, the government provides substantial financial support and incentives to farmers, guiding them from seed to market.Chief Minister Yogi Adityanath personally advocates for natural farming at every possible platform.

In a significant move, the government has decided to implement natural farming within a 5-kilometer radius on both banks of the Ganga and local rivers. To facilitate this, 1,886 farming clusters will be established, with a dedicated budget of Rs 270.62 crore. This action plan was recently approved in a state-level Agriculture Committee meeting.

Additionally, the cabinet has sanctioned Rs1,191.51 crore for natural farming and the farm pond scheme, officials here on Saturday said.

The UP government’s latest budget has also allocated Rs 124 crore under the National Mission on Natural Farming to boost this initiative further.

The vision is to extend natural farming practices along the banks of all local rivers across Uttar Pradesh, ensuring a complete shift towards organic methods.

By replacing chemical fertilizers and toxic pesticides with organic alternatives, the government aims to prevent harmful leaching into rivers, thus protecting water bodies from pollution.

Notably, under the Namami Gange Yojana, chemical-free farming is already being promoted in 27 districts along the Ganga, with natural farming currently practiced in over 1,000 villages. Furthermore, the Paramparagat Krishi Vikas Yojana is being implemented across 54 districts to support this transformation.

The government also envisions Bundelkhand—a region severely affected by stray cattle—as Uttar Pradesh's hub for natural farming. Since the Yogi government 1.0, natural farming has expanded significantly, covering nearly 5,000 clusters and engaging over 18,000 farmers across 10,000 hectares.

Under Namami Gange, natural farming is practised on 6,500 hectares across 3,300 clusters, with more than one lakh farmers actively involved. As a result, the Indo-Gangetic plains—one of the world's most fertile regions—now host the largest organic farming area in the state.

Experts at the Organic Farming Kumbh (2017), held at the India Expo Center and Mart, Greater Noida, organized by the Organic Farming Association of India, recommended designating the Ganga plains for organic farming, citing the region's naturally replenishing soil fertility, enhanced annually by floods.

Taking this forward, Yogi Government 2.0 expanded organic farming across all districts along the Ganga, and now, the government is set to scale it up even further.

IT'S TIME NATURAL AND REGENERATIVE FARM PRACTICES WERE REVIVED

Mar 24, 2025 https://www.tribuneindia.com/

The National Food Security Act (NFSA) in India states that the right to food must be implemented to guarantee food to the needy people at affordable prices. Thus, food security is of great concern to India. With its population, currently at 143 crore, which is likely to expand to 160 crore by the 2060s, food security will remain the one of the top policy agendas.

One way to fulfil this demand is to further intensify agriculture, which is already under pressure due to a substantial decline in fertiliser efficiency, deteriorating soil health, climate change and over-exploitation of water resources. According to a recent Food and Agriculture Organisation report, intensive agriculture is causing huge economic damage globally. The social, health and environmental cost of intensive agriculture and associated food systems in India is estimated to be a Rs 113 lakh crore ($1.3 trillion) annually.

The other approach is to examine alternative systems that have been part of the agriculture and farming communities since the pre-modern agricultural period, modify them using science-based agro-ecological principles, examine their feasibility and upscale them to secure the future of sustainable farming. This will ensure food and ecological security by improving farm productivity and farmers' profitability, protecting natural resources and improving soil health and biodiversity.Indian agriculture must widen its vision. It should not just rely on intensive agricultural practices through input subsidies, which started in the 1960s during the Green Revolution and are causing damage to society and

planetary health. It must mainstream natural, organic and regenerative farming to realise food and ecological security. Currently, a fraction of the farmers practise natural, organic or regenerative farming. The time is right to understand and evaluate these different systems so that the agricultural landscape can be diversified, strengthened and made future-proof.

It is not widely recognised that natural farming originated in India. This was noted by Sir Albert Howard, an imperial economic botanist and director of the Institute of Plant Industry, Indore, during his service between 1905 and 1931 in India. It was also known as the Indore process. Sir Howard described natural farming as a system that follows the cycles of nature to produce food. It aims to produce food holistically by maintaining a balance between crop and soil health and focusses on the well-being of farmers and consumers. Sir Howard formalised the principles of natural farming. Today, less than one million hectares are under natural farming, practised by about 2.2 million farmers, predominantly small farmers. Ironically, intensive farm practices were adopted in the 1960s, overlooking the sustainable practices that were locally developed and embedded for centuries.

The principles of natural farming also inspired Lady Eve Balfour and Jerome Rodale as they pioneered organic farming movements in the UK and the USA respectively in the mid-20th century. The term natural farming 1979 onwards was re-popularised by Japanese farmer and philosopher Masanobu Fukuoka as the science of growing food naturally.

In India, with its centuries-old practice of natural farming was popularised by Subhash Palekar, who initiated the movement for zero-budget natural farming around the turn of the century.

Organic farming prohibits synthetic inputs, such as chemical fertilisers, genetically modified seeds, growth hormones and antibiotics. The organic movement began in the early 20th century. Organic food is grown using the principles primarily based on standards advocated by the International

Federation of Organic Agriculture Movements (IFOAM). The IFOAM-Organics International works in over 100 countries.

In India, about 2.7 million hectares are under certified organic farming. It is an extension of natural farming, but comes with a third-party certification of authenticity and, hence, a price premium in the market. Food produced using natural farming does not require certification.

The term regenerative farming was coined by the Rodale Institute, USA, in 1980 and has become popular during the last five years. However, the practices of regenerative farming existed long before, as Sir Howard founded them in the early 20th century in India. It is defined as the system of food production that promotes the judicious use of inputs, promotes farmers' well-being and focusses on improving human and soil health. It aims to conserve resources and provide a rehabilitation approach to producing food by improving soil, land, water and biodiversity.

These farming systems originated in India when Sir Albert Howard described the local, sustainable farming systems as natural farming systems. Comparing and contrasting these systems allows us to conclude that regenerative and natural farming are highly productive systems, with better social and ecological outcomes.

These systems are being adopted in farms worldwide. They can offer millions of farmers in India an alternative to improving climate resilience and increasing their incomes while producing enough food required for the nation's food security.

Organic farming, which is distinguishable from local inputs-based natural farming, is often co-related with high consumer prices. It has its place with conscious consumers who have the buying power and support a responsible food production system.

As much of the agricultural land in India is under intensive agricultural practices, there is a need to re-examine the role of natural, regenerative farming

across all agro-climatic zones. An appropriately diversified approach can be adopted based on the geography and social and ecological conditions. This will help achieve a rapid uptake of natural or regenerative farming practices and enable agricultural diversification and adoption of sustainable and equitable farming systems.

The recently launched National Mission on Natural Farming by the Government of India is a step in this direction. The government has set the goal of adoption of natural farming by 10 million small farmers by 2026. Once it is achieved and replicated at scale, it will improve the livelihoods of millions of farmers and enhance the climate resilience of farms. Millions of consumers will have access to food grown responsibly and free from harmful chemicals.

Following such policies, India must redesign its agriculture with a clear strategy to mainstream natural, organic and regenerative farming to secure its food and ecological and nutritional security.

ICAR IN PRINT

NEW SWEET POTATO VARIETY DEVELOPED BY ICAR-CTCRI TO STRENGTHEN TRIBAL FOOD SECURITY PROGRAMMES

March 31, 2025 https://www.thehindu.com/

A new orange-fleshed sweet potato variety developed by the ICAR-Central Tuber Crops Research Institute (ICAR-CTCRI) is set to play a role in strengthening tribal food security programmes in Kerala and elsewhere in the country.

Awaiting formal release, the biofortified orange-fleshed sweet potato, designated SP-95/4, has undergone final trials successfully in multiple States,

including Odisha, West Bengal, Karnataka and Kerala, officials of the Thiruvananthapuram-based ICAR-CTCRI said.

Bumper yield

In the Attappady tribal region in Kerala, the pink-skinned, orange-fleshed sweet potato has already paid rich dividends to farmers with a bumper yield last week, CTCRI Director G. Byju told The Hindu. Its try-out in Attappady was organised through a convergence of the tuber crop-based Rainbow Diet Programme of the CTCRI and 'Punarjeevanam,' a joint initiative of Kudumbashree and the CTCRI.

"This is a highly promising variety. The orange colour due to the presence of 8 mg/100g Beta-carotene is a major feature as vitamin A deficiency is chronic in this region," Dr. Byju said. Individual tubers weigh an average 300 grams. They also have a fusiform shape which make them ideal for processing. "The final set of trials before the official release was successful in Purulia district of West Bengal, multiple districts in Odisha, Belgaum in Karnataka and Attappady," he said.

The CTCRI and the Kudumbashree Mission are now planning to expand sweet potato cultivation in Attappady to 100 acres by the end of 2025, S. Shanavas, State Programme Officer (Farm Livelihoods), Kudumbashree, said.

Rainbow diet

The CTCRI had launched the tuber crop-based 'rainbow diet' programme at Attappady in 2023 as part of promoting biofortified tubers among tribal communities for battling malnutrition and ensuring a balanced diet. In 2024, it was scaled up under the 'Punarjeevanam' programme.

Sweet potato (Ipomoea batatas) is one of the most nutritionally rich tuber crops that can be integrated into health-focussed dietary support strategies for addressing nutritional insecurity and related public health challenges, the CTCRI has noted in a March 2025 document on value addition using this tuber.

ICAR GIVES TURMERIC WASHERS, SLICER MACHINES TO FARMERS

March 22, 2025 https://theshillongtimes.com/

The ICAR Research Complex for North Eastern Hill (NEH) Region, Umiam under the Tribal Sub-Plan (TSP) project, distributed 15 turmeric washers and 15 turmeric slicer machines to farmers at a function on Saturday.The beneficiaries included members of SHGs and cooperative societies from different districts including Ri-Bhoi, East and West Jaintia Hills, South West Khasi Hills, West Khasi Hills, and East Khasi Hills.According to a statement, the machines which are pedal-operated and gender-friendly, are aimed at reducing drudgery and improving post-harvest efficiency.The turmeric washer can clean up to 12 kg in just 2–3 minutes, while the slicers can cut 48 kg per hour into uniform slices, promoting even drying and improved powder quality.Each machine costs approximately Rs 25,000 and is available at ICAR RC NEH, Umiam.It may be mentioned that around 35 farmers underwent hands-on training on machine operation, maintenance, and custom hiring centre management, conducted by Dr Naseeb Singh, the inventor of the machines.Formal agreements were signed between SHG/cooperative presidents, the TSP Nodal Officer, and the Director to ensure responsible usage and upkeep of the equipment.Dr VK Mishra, Director, ICAR RC for NEH Region and Dr S Hazarika, TSP Nodal Officer, emphasized ICAR’s continued efforts towards empowering tribal farmers and urged the beneficiaries to use the machines effectively for collective benefit.

ICAR-IIWBR WARNS FARMERS AGAINST RUST DISEASES IN WHEAT CROP

March 11, 2025 https://www.en.krishakjagat.org/

Wheat farmers should conduct frequent field visits to detect early signs of stripe rust (yellow rust), brown rust, and black rust, according to the latest advisory by the ICAR-Indian Institute of Wheat and Barley Research (IIWBR), Karnal.

If rust symptoms are confirmed, farmers should spray Propiconazole 25EC (1 ml per liter of water), ensuring 200 ml of fungicide is mixed in 200 liters of water per acre. The spray should only be applied under clear weather conditions—avoiding rainy, foggy, or dewy periods—to maximize effectiveness.

Early detection and timely intervention can prevent the rapid spread of rust diseases and safeguard wheat yields.

Source: ICAR-Indian Institute of Wheat and Barley Research, Karnal

ICAR-CIARI LICENSES PATENTED CINNAMON BARK RUBBING TOOL TO WOMAN ISLAND ENTREPRENEUR

March 4, 2025 https://nicobartimes.com/

ICAR-Central Island Agricultural Research Institute (ICAR-CIARI) has licensed its patented technology on the cinnamon bark rubbing tool, 'Dweep CinnRub,' to an island entrepreneur. A memorandum of understanding (MoU) was signed between Dr. Eaknath B. Chakurkar, Director of ICAR-CIARI, and Mrs. R. Karthika Devi, a young entrepreneur from South Andaman, in the presence of the institute's scientific staff.

ICAR-CIARI, a premier agricultural research institute, is dedicated to developing farmer-friendly technologies for both the Andaman and Nicobar Islands and mainland India. Among its recent innovations is the cinnamon bark rubbing tool, designed to address the challenges of cinnamon harvesting.

True cinnamon (Cinnamomum verum) is a highly valued tree spice with extensive applications in the flavor, fragrance, and pharmaceutical industries. India imports cinnamon and cassia worth approximately Rs. 900 crore annually to meet domestic demand. Promoting cinnamon cultivation in the country is crucial to reducing this dependency, but the labour-intensive harvesting process has been a deterrent for farmers.

The harvesting of cinnamon involves multiple steps, including scraping the outer bark, rubbing the stems, and carefully extracting the inner bark. Due to the skill required, only a limited number of people are proficient in this process,

increasing harvesting costs. Additionally, no specialized tool has been available for the rubbing process, resulting in quality loss and inefficiency.

To address this gap, ICAR-CIARI researchers Dr. Ajit Arun Waman and Dr. Pooja Bohra developed 'Dweep CinnRub,' a user-friendly tool designed to streamline cinnamon harvesting while conserving time and labour. The innovative tool is expected to benefit existing cinnamon cultivators in coastal and island states, as well as farmers in regions where cinnamon cultivation is expanding.

Recognising the importance of making this technology accessible, ICAR-CIARI licensed the tool to Mrs. R. Karthika Devi, who aims to mass-produce and distribute it to stakeholders nationwide. Expressing his satisfaction, Dr. Chakurkar commended the young woman entrepreneur for her initiative and extended his best wishes for her venture.

The licensing of 'Dweep CinnRub' marks a significant step in supporting sustainable cinnamon cultivation in India and empowering local entrepreneurs in the Andaman and Nicobar Islands. (Story Based on PR)

IISR IN PRINT

IISR & IIMR COLLABORATES TO DEVELOP SOYA-MILLET FOOD ITEMS

Mar 17, 2025 https://timesofindia.indiatimes.com/

Indore: The Indian Institute of Soybean Research (IISR), Indore, in collaboration with the Indian Institute of Millets Research (IIMR), Hyderabad is planning a joint research to develop high nutritional value food items combining soyabean and millets like yogurts, energy bars, flour, idli

mix and other food items.The institutes are in advanced discussions to develop soy fortified millet based products from soyabean and millets, to enhance the protein and nutritional value of the food items.IIMR is an agricultural research institute engaged in fundamental and strategic research on sorghum and other millets.

Dr Mahaveer Sharma, Agri-Business Incubation Centre of ICAR-IISR in charge said, "There is a burgeoning need to increase the protein and nutritional values in food products for the benefit of human health. We are collaborating with IIMR to develop products that will have benefits of both soyabean and millets. The use of soyabean in millets will increase the protein content in the food item. We are in discussions and anticipate commencing joint research for developing soy fortified millet based products."

Recently, more than 90 participants including startups working on value added soya food, incubates and scientists participated in the Research-Industry Interface Meet conducted by the ICAR-IISR. Startups working on soy food, bio fertiliser, animal feed amongst others participated in the industry meet. Close to a dozen incubates at the Indore station are engaged in the production of soy based food items like soya cookies, tofu, soya milk, soya snacks. The chief guest, ICAR deputy director general (crop science) Dr DK Yadav virtually joined the meet and stated, "It is crucial to control the major diseases of soybean currently affecting the country like charcoal rot and Rhizoctonia aerial blight. The need is to prepare a roadmap on soy protein through discussion sessions with the industry."Participants emphasised increasing the consumption of soyabean in food to get desired protein levels. ICAR-IISR Indore director Dr KH Singh said, "Processing and value addition of soyabean is essential to enhance its market and foster the growth in the related industry. Presently about 350 products are being made from soybean." A panel discussion was conducted to address challenges and deliberate on the soya industry.

PLANTING MATERIALS DISTRIBUTED TO 200 BENEFICIARIES

March 06, 2025 https://www.thehindu.com/

The Indian Institute of Spices research (IISR) in association with the Kozhikode district panchayat organised an agriculture awareness programmes for selected farmers from the Scheduled Caste communities here on Wednesday (March 5, 2025). District panchayat president Sheeja Sasi opened the event, which also witnessed the distribution of various planting materials to 200 beneficiaries.

Programme coordinators said the initiative was part of creating better awareness among farmers about modern agricultural practices and ways to improve production using high-yielding varieties. A panel of five experts from the IISR led the awareness sessions, they added.

District panchayat vice president P. Gavas presided over the inaugural function. Officials from the Department for Welfare of Scheduled Castes and heads of various standing committees under the district panchayat were present.

WORKSHOP ON FUTURE OF DIGITAL LIBRARIES HELD

March 25, 2025 https://www.thehindu.com/

Kozhikode: A State-level workshop on the future of digital libraries in India and the importance of digital education was held at Providence Women's College, Kozhikode, on Monday. R. Dinesh, Director of the Indian Institute of Spices Research, inaugurated the programme, which was organised with the support of the National Digital Library of India (NDLI) and the NDLI Club. Representatives from various educational institutions participated in the workshop. Appa Sahed Naikal, chief librarian of the Indian Institute of Management, Kozhikode, was the chief guest. B. Sutradhar, librarian at the

Central Library of IIT Kharagpur, delivered a presentation on the significance of NDLI projects. College Principal Sr. Justeena Joseph also attended.

IISR ENTERS SWEETENER MARKET WITH SPICE-FLAVOURED JAGGERY CUBES

March 24, 2025 https://www.thehindubusinessline.com/

In its efforts to offer a convenient alternative to conventional sugar, Indian Institute of Spices Research has introduced spice-flavoured jaggery cubes.

Developed by the institute's Post-Harvest Technology laboratory, the new product brings together the traditional sweetness of jaggery with a unique blend of aromatic spices. It is crafted using a refined process where jaggery is formed into uniform cubes, blended with a variety of natural spice flavours like ginger, cardamom, black pepper and many more. These cubes offer a distinctive flavour profile that enhances the taste of beverages like tea and coffee, while also serving as a health-conscious sweetener.

The product is designed for easy use, with each cube weighing approximately 4 grams, making it convenient for daily consumption. These cubes dissolve seamlessly in 150 ml of hot water or beverages like tea or coffee, providing just the right amount of sweetness with a burst of spice. Unlike traditional jaggery, which can often be bulky and inconsistent, these uniform cubes are easy to measure and use.

GENERAL

BARAMATI'S AI-DRIVEN FARMING EXPERIMENT OFFERS KEY LESSONS FOR INDIAN AGRICULTURE

Mar 12, 2025 https://frontline.thehindu.com/

Seema Chavan, 56, a farmer from Swami Chincholi village in Baramati Taluka, in Maharashtra's Pune district, has suddenly earned worldwide fame. In a video clip that Microsoft CEO, Satya Nadella, shared twice on X, Seema talks about her experience of using AI in her sugarcane farming. "My cost of farming has come down by at least 30 per cent and the yield is up by 30 to 40 per cent. I use AI on 1.5 acres of my farm. But from next year, I will bring my entire field under the AI," she said reflecting on what the future of farming could look like, aided by AI.

The world has already begun discussing AI's benefits to farming. But thus far, AI's use in the actual growth of crops has not been debated. And the Baramati experiment appears to be pioneering this prospect.

The experiment began three years ago, at Baramati's Agricultural Development Trust (ADT), a reputed institution established in 1971 by MP Sharad Pawar and his elder brother Appasaheb Pawar. When Sharad Pawar and his younger brother Pratap Pawar started reading about possible changes that AI could bring about in people's lives and livelihoods, they became curious about the possible use of technology in agriculture. ADT was already in a tie-up with Oxford University for knowledge-building in farming. So ADT invited Ajit Jaokar, an engineering scientist and course director for several AI programmes,to visit ADT and Krishi Vigyan Kendra (KVK) of Baramati.

Jaokar, pleased with ADT's scientific approach to farming, introduced the brothers to Ranvir Chandra, the Chief Technology Officerof the agri-food section ofMicrosoft, who promised technical support from Microsoft for research. It was a coup for ADT, with Microsoft and Oxford on board. Before long, ADT in Baramati began working towards creating an AI centre at its campus.

One crop, two ways

Now it was time to experiment with the new technology, and ADT began to do so on their own farms, ranging from sugarcane to tomato. To assess the benefits of AI, they grew the same variety of crops in two ways: one assisted by AI and the second used traditional farming methods. The result was startling: the crop grown with AI assistance fared far better in terms of yield. "Farmers who visited began to notice the difference; this garnered their support, and we were able to expand the scope of the experiment," said Prataprao Pawar.

Last year, around 1,000 farmers expressed interest in adopting AI in their farms, especially for sugarcane. So, 1,000 farmers from across Maharashtra, where sugarcane is grown, joined the AI farming experiment. And Seema Chavan was one of them.

ADT went about their project methodically. First, a "war room" was set up in KVK. Representatives of Fasal (a start-up that helps farmers get information about weather and soil quality), Map My Crop (which uses satellite imagery to map farm areas) and Agri Pilot (which processes data from weather stations, soil sensors and satellite maps) were asked to be available 24/7 at the room.

ADT designed a standard operating procedure with the help of experts. First, they had to physically reach farms to collect soil samples and longitude-latitude data; weather stations, and soil sensors designed by Fasal were set up on every farm; and Map My Crop mapped the farm area with satellites. Meanwhile, Oxford researchers analysed the data and created an algorithm that was given

to Microsoft's AI system, which processed the data, and included traditional knowledge fed by KVK.

KVK collected data directly from farmers and this was compared with AI's suggestions. Yogesh Phatake, a microbiologist with KVK said, "We found that almost 95 per cent of AI findings and ground information matched. This helped us to garner farmers' confidence to continue with the project."

This was just the beginning of raising a crop. All 1,000 farmers were asked to download an app, Krushik, designed by KVK. The information gathered and processed by AI was transmitted to farmers through this single window. So, weather station information could be seen by the farmers instantly, as was data from soil sensors. AI could now even send farmers forecast alerts.

Vilas Bhagat, a progressive farmer from Korhale village in Baramati was initially sceptical about AI. But his son Aditya, encouraged his family to enrol for the experiment. The Bhagat family, with 140 acres of sugarcane, decided to try out the experiment on two acres. One day, Aditya got an alert that there would be 3 mm of rain at his farm one afternoon. He was at his home and the sky was clear; members of his family laughed at him. But he went to assess the situation at the farm, there was indeed a shower. "This was when my family started taking the project seriously," said Aditya.

Pest alert

Another advantage was disease prediction through satellite data. One day, Aditya got an alert that a part of his sugarcane crop was at risk of trunk worm infestation. When Aditya and his father Vilas went to check they found that the satellite information was accurate. "We immediately sprayed preventative medicine. We in fact sprayed the entire farm to save the crop from disease," said Vilas. "One alert saved us almost Rs.80,000," said Vilas Bhagat.

Soil sensors also collect real-time data on moisture and temperature, which is processed with the help of AI that indicates the exact timing of irrigation. Seema Chavan said, "Earlier I used to irrigate the farm for six to seven hours

twice a week. But this time has now reduced. I learnt that watering the farm for two hours is enough.

The timing and quantity of fertilizers needed are also provided through AI. “AI also helps us with the exact location of fertiliser requirements. This has reduced the quantity of fertilizer we use,” said Aditya Bhagat. “My expenses on fertilizer, water, as well as labour, has reduced by 30 per cent,” said Seema Chavan.

Meanwhile, the farmers have noticed another promising outcome of AI-assisted farming: while traditional sugarcane grows is 8 feet tall, crops monitored by AI are around 10 to 11 feet tall; and the sucrose percentage, which ultimately decides the farmers’ income, has increased by 2 to 4 per cent, depends on the variety of the plant.

With the success of their experiment, ADT Baramati is now expanding their project there are plans to experiment on one lakh ha of farmland, involving 50,000 farmers. Online registration has reached 12,000 now, but offline registrations would be double that. The Maharashtra government in its budget presented on March 10 announced a Rs.500 crore financial assistance package for experiments in AI in agriculture.

ADT, Baramati, is already working on the issue. The State’s Finance Minister, Ajit Pawar, the now estranged nephew of Sharad Pawar, made this announcement. “We are sure we will easily reach 50,000 farmers because in last two months, farmers across States such as Uttar Pradesh and Karnataka have come to see the experiment,” said Nilesh Nalawade, CEO of ADT, Baramati. “But right now, our focus is on Maharashtra.”

However, such technology-based programmes that create huge amounts of data must be protected by laws on its usage, and the government has a role to play in assuring farmers about the security of the information gathered from the farms.

But there is another big challenge ahead: To make the technology cost-effective in the Indian farming context. KVK's weather machines, sensors, etc. were provided at a highly subsidised cost (Rs.12,000) and marginalised farmers can't spend the actual amount (Rs.80,000) for the new technology. So, it is now up to the government to take the baton forward.

While visiting the ADT, Baramati in January 2023, Chandra termed the experiment "Farm of the Future". These words could well be prophetic, not just in Baramati, but for the country as a whole.

SAFFRON AND OTHER SPICES TO LOWER CHOLESTEROL NATURALLY

20, Mar 2025 https://graziamagazine.com/

Spices can play numerous roles—but we usually think first about their culinary charm. Traditional French cooking may not be the most adventurous when it comes to spice usage. Eastern cuisines, on the other hand, have long embraced spices as essential ingredients.

Indeed, Europe too has discovered over centuries how spices can transform dishes, add fragrance, and even deliver health benefits.

The Power Behind the Spice

Constantly highlighted for their unique health properties, spices are making a stronger entry into our daily routines. They don't just add flavor; in many cases, they are believed to help boost overall well-being.

Effects vary greatly from one spice to another, and rigorous scientific research about these benefits is still limited. Yet modern science is now paying careful attention to what traditional medicine has long utilized.

A Spice Like No Other: The Golden Secret of Saffron

You've probably heard of ginger, valued globally for its energizing and antiseptic qualities. And turmeric, a natural anti-inflammatory and potent

antioxidant known widely for helping digestion, is also currently enjoying its moment as a wellness superstar.

But there's another spice prized for millennia—especially in Indian and Persian cuisines—for its manifold benefits, some scientifically proven, others still speculated upon: saffron.

This tiny dried pistil, derived from the flower Crocus sativus, can sell at dizzyingly high prices. Why? Because cultivating saffron demands meticulous, labor-intensive harvesting and processing. Premium quality saffron (yes, even excellent French saffron exists!) can reach an astounding €30,000 (approximately $32,000) per kilogram.

Saffron: A Cholesterol-Fighting Spice?

Fortunately, saffron is potent enough to deliver powerful results in very small doses. Lower-quality saffron can also cost slightly less (though still expensive, ranging from about $11 to $27 per gram). As an article in France's Journal des Femmes points out, scientists worldwide are taking a keen interest in its possible health impacts—particularly regarding fat absorption and cholesterol control.

Recent research, such as a 2022 Malaysian study published in The Malaysian Journal of Science, investigated saffron extract's ability to manage "bad" fats involved in cholesterol imbalance. The results are promising: the saffron compounds could positively influence cholesterol levels, achieving effects closely comparable to medications prescribed to manage cholesterol in humans.

A Promising Area for Further Studies?

An active ingredient in saffron, crocin, may have hypolipidemic effects—potentially making it particularly helpful in fighting harmful cholesterol buildup. Its use could support cholesterol management, thus decreasing associated cardiovascular risks.

Of course, we aren't suggesting eating spoonfuls of the spice—that would bankrupt you and likely harm rather than boost your health. Moderation is key.

Supporting these findings, a 2020 Spanish study published in Applied Science Functional Foods and Human Health demonstrated positive impacts after consuming saffron infusions daily for three months, significantly reducing bad cholesterol levels. The required amounts were minimal: quality saffron diluted in water.

While encouraging, larger-scale studies are necessary for more definitive claims. Most importantly, saffron supplementation doesn't replace the need for adopting fundamental dietary and lifestyle habits to restore balance sustainably.

Cinnamon: From Grandma's Baking to Your New Daily Ritual

For many of us, cinnamon evokes cozy memories of grandma's apple pies. However, this warm, sweetly-spicy ingredient is returning grandly—finding its way into our kitchens, cups, and skincare rituals.

Rich in antioxidants, fragrant cinnamon has all the traits of the ultimate "super ingredient." Why limit yourself to just a sprinkle in baked goods?

Perhaps the easiest way to incorporate cinnamon into your life is through infusions. A cinnamon stick steeped gently in hot water—add a slice of orange or a few drops of honey—and voilà—a comforting, mood-boosting drink that warms your spirit as much as your body. Consider it the liquid equivalent of being wrapped in your softest blanket on a stressful day.

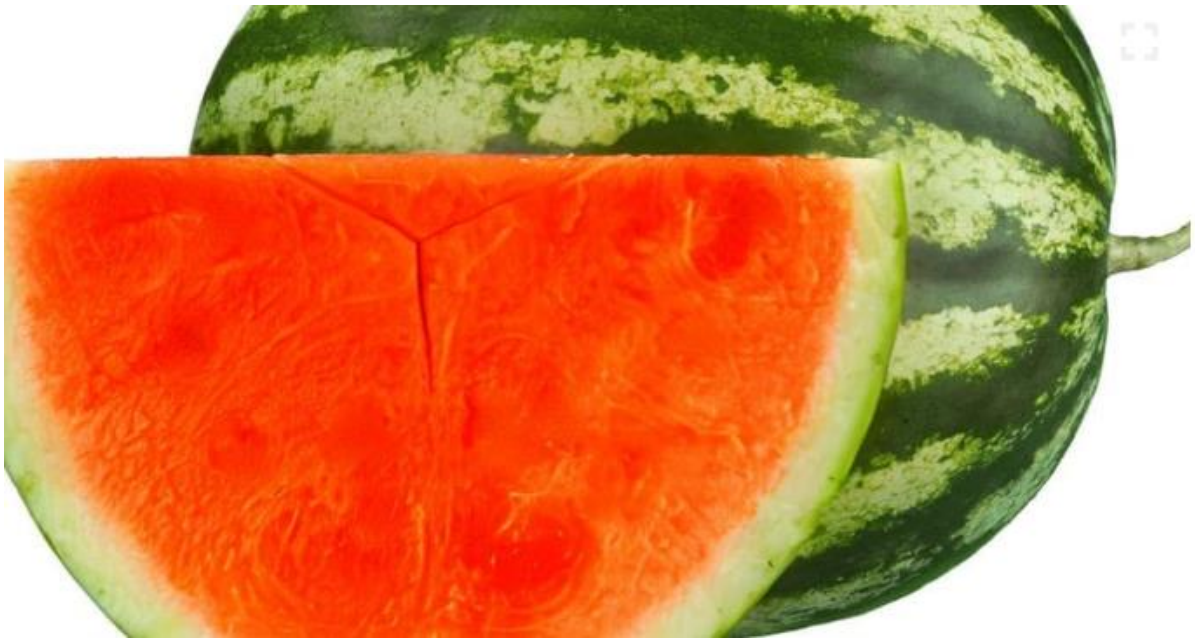
Cooking-wise, cinnamon works wonders everywhere. Sprinkle it generously in porridge, mix it into homemade compote, or surprise your palate by blending it lightly into vegetable curries or carrot soups. For added sophistication, elevate your morning cappuccino with a dash of cinnamon—or enhance the pleasure of hot chocolate with this little twist.

Cinnamon doesn't stop at your kitchen. It's also making waves in beauty routines: mixed into homemade masks to stimulate circulation, added gently with honey for a natural lip plumper, or blended with sugar and oil to create a gentle exfoliating scrub. Be cautious though; cinnamon can irritate sensitive skin, so start gently.

Whether you're a fan of cozy lattes, spicy cooking, or DIY skincare, cinnamon deserves a place in your daily life. It warms, stimulates, scents… and has that little sensory touch that makes everything feel softer. We told you: it's got it all.

Orange surprise: Kerala Agricultural University develops a sweeter, seedless watermelon

04,March 2025 https://www.thehindubusinessline.com/



After successfully developing the red-fleshed Shonima and yellow-fleshed Swarna, Kerala Agricultural University (KAU) has introduced another innovation—an orange-fleshed seedless watermelon. This new variety was developed at the Department of Vegetable Science, KAU, Vellanikkara, as part of the PhD research project of Ansaba, a scholar working under Pradeepkumar T, the principal breeder of Swarna and Shonima.

This marks a major milestone, as it is the 'first time in India that a public-sector research institute' has developed a seedless watermelon with an orange core.

Sweeter and better quality

The orange-fleshed seedless watermelon weighs around 3.5 kg and is sweeter and of better quality than conventional varieties. However, before seeds can be made available to farmers, detailed experiments are required to ensure stability and large-scale production.

Previously, Kerala Agricultural University had transferred the technology for producing seeds of Shonima to the Vegetables & Fruits Promotion Council Kerala and a private seed company based in Bangalore.

What did the research find?

Watermelon is a fruit known for its nutritional benefits, including essential phytonutrients, minerals, and antioxidants. As part of the study, researchers at KAU assessed 20 watermelon genotypes with different flesh colours—red, pink, orange, yellow, and white—to evaluate their nutritional potential.

The research was conducted over two growing seasons (December-March of 2021-2022 and 2022-2023) at the experimental field of the Department of Vegetable Science, KAU, Thrissur.

The study revealed variations ($p=0.05$) in nutritional quality among different watermelon genotypes, particularly in the levels of lycopene, beta-carotene, citrulline, and ascorbic acid.

- Lycopene content ranged from 0.037 to 66.963 µg/g (fresh weight), with red-fleshed varieties being the richest source.
- Beta-carotene content varied from 0.037 to 7.423 µg/g, with orange-fleshed genotypes containing the highest levels.
- Citrulline content was highest in orange and yellow-fleshed varieties, ranging from 843.810 ppm to 2589.750 ppm.
- Ascorbic acid (Vitamin C) content ranged between 21.410 and 49.827 mg/kg, with red-fleshed varieties showing the highest levels.
- White-fleshed watermelons had the lowest levels of lycopene and beta-carotene.

MALAYALAM NEWS

ഒരു ഗ്ലാസിന് മൂന്നെണ്ണം മതി; രൂപം മാറി ശർക്കര; സുഗന്ധവ്യഞ്ജന രുചി ചേർത്ത ശർക്കരക്കട്ടകളുമായി ഐഐഎസ്ആർ

March 24, 2025 https://www.manoramaonline.com/

ശർക്കരയുടെ രൂപവും രുചിയും മാറ്റി മൂല്യവർധിത ഉൽപന്നമാക്കി വിപണിയിലിറക്കാൻ തയാറെടുത്ത് കോഴിക്കോട് ഭാരതീയ സുഗന്ധവിള ഗവേഷണ സ്ഥാപനം (ഐസിഎആർ - ഐഐഎസ്ആർ). സ്പൈസ് ഇൻഫ്യൂസ്ഡ് ജാഗ്ഗറി ക്യൂബ്സ് (സുഗന്ധവ്യഞ്ജന രുചിച്ചേർത്ത ശർക്കര) എന്ന പുതിയ ഉൽപന്നം ഗവേഷണ സ്ഥാപനത്തിലെ പോസ്റ്റ് ഹാർവെസ്റ്റ് ടെക്നോളജി വിഭാഗമാണ് വികസിപ്പിച്ചത്. വെറും ശർക്കരയ്ക്കു പകരമായി ഷുഗർ ക്യൂബ്സ് മാതൃകയിൽ ഏകീകൃത വലുപ്പത്തിലും തൂക്കത്തിലുമുള്ള ശർക്കരയുടെ കട്ടകൾ (ക്യൂബ്സ്) സുഗന്ധവ്യഞ്ജനങ്ങളുടെ സത്ത് ചേർത്ത് തയാറാക്കിയതാണ്. ഇഞ്ചി, ഏലം, കുരുമുളക് പോലെയുള്ള സുഗന്ധവ്യഞ്ജനങ്ങളുടെ രുചിയിലും അതോടൊപ്പം പലതരത്തിലുള്ള ബ്ലെൻഡുകളായും ഇവ ലഭ്യമാണ്.

ഉപഭോഗവസ്തു എന്ന നിലയിൽ അന്താരാഷ്ട്ര വിപണിയിലുൾപ്പെടെ ശർക്കരയ്ക്ക് മികച്ച വിപണിയും ആവശ്യകതയുമാണ് നിലവിലുള്ളത്. ഇത് മറയാക്കി മായം ചേർത്തുവരുന്ന ശർക്കരയുടെ സാന്നിധ്യവും വിപണിയിലുടനീളം കാണപ്പെടുന്നുണ്ട്. ഇതിനുകൂടി പ്രതിവിധിയാണ് ഗവേഷണ സ്ഥാപനത്തിന്റെ ഉൽപന്നമെന്ന് ഐഐഎസ്ആർ വാർത്താക്കുറിപ്പിൽ അറിയിച്ചു. ഉപയോഗിക്കാൻ തീർത്തും സൗകര്യപ്രദമായ രീതിയിൽ 4 ഗ്രാം വരുന്ന ക്യൂബുകളായാണ് ഇവ വരുന്നത്. ഭൗമസൂചിക പദവിയുള്ള മറയൂർ ശർക്കര ഉപയോഗിച്ചാണ് ഇവയുടെ നിർമാണം. ചൂടുവെള്ളത്തിലോ, ചായ, കാപ്പി പോലുള്ള പാനീയങ്ങളിലോ ഉപയോഗിക്കുമ്പോൾ 150 മി.ലി. വരുന്ന ഒരു ഗ്ലാസിന് മൂന്ന് ക്യൂബ് എന്ന അളവിൽ ഉപയോഗിക്കാൻ കഴിയുന്ന വിധത്തിലാണ് തയാറാക്കിയിരിക്കുന്നത്. സുഗന്ധവ്യഞ്ജനങ്ങളുടെ സത്താണ് ഗവേഷണ സ്ഥാപനം ഇതിനായി ഉപയോഗിക്കുന്നത്. അതുകൊണ്ടുതന്നെ ശർക്കരയിലടങ്ങിയിട്ടുള്ള സുഗന്ധവ്യഞ്ജനത്തിന്റെ നൂറു ശതമാനവും തയാറാക്കുന്ന പാനീയത്തിൽ ലയിച്ചു ചേരും. മറിച്ച് പൊടികൾ ചേർത്താണ് നിർമാണമെങ്കിൽ ഇതിന്റെ തോത് 40 മുതൽ 60 ശതമാനത്തോളം മാത്രമേ വരികയുള്ളൂ. ജലാംശവും തീരെ കുറവുള്ള ഇവ കേടുകൂടാതെ എട്ടു മാസത്തോളം അന്തരീക്ഷതാപനിലയിൽ സൂക്ഷിച്ചു വയ്ക്കാനുമാവും.

പഞ്ചസാരയ്ക്കു പകരമായി ആരോഗ്യപ്രദമായ ഒരു മാതൃകയായി ഈ ഉൽപന്നത്തിനെ തിരഞ്ഞെടുക്കാം. സുഗന്ധവ്യഞ്ജന രുചിയോടെ തീർത്തും സൗകര്യപ്രദമായ രീതിയിൽ ഉപയോഗിക്കാനാവുന്ന ശർക്കരയുടെ ക്യൂബുകൾക്ക് വിദേശത്തുൾപ്പെടെ മികച്ച വിപണി കണ്ടെത്താൻ സാധിക്കുമെന്ന് ഗവേഷണ സ്ഥാപന ഡയറക്ടർ ഡോ. ആർ.ദിനേശ് പറഞ്ഞു.

ഗവേഷണ സ്ഥാപനത്തിലെ ശാസ്ത്രജ്ഞ ഡോ. ഇ.ജയശ്രീ, ഗവേഷക വിദ്യാർഥി മീര മോഹൻ, ശാസ്ത്രജ്ഞരായ ഡോ. പി.വി.അൽഫിയ, ഡോ. കെ.അനീസ്, ഡോ. പി.രാജീവ്, ഡോ. സി.ശാരതാംബാൾ എന്നിവരടങ്ങിയ സംഘമാണ് ഇതിന്റെ ഉൽപാദനത്തിൽ പ്രവർത്തിച്ചത്. ഈയിടെ സുഗന്ധവിള ഗവേഷണ സ്ഥാപനത്തിൽ നടന്ന ചടങ്ങിൽ കൃഷിമന്ത്രി പി.പ്രസാദ് ഈ ഉൽപന്നത്തിന്റെ വാണിജ്യോൽപാദനത്തിനുള്ള ലൈസൻസ് തൃശൂരുള്ള സിഗ്നേച്ചർ ഫുഡ്സ് എന്ന സ്ഥാപനത്തിന് കൈമാറി. ഈ ഉൽപന്നത്തിന്റെ പേറ്റന്റിനും ഗവേഷണ സ്ഥാപനം അപേക്ഷിച്ചിട്ടുണ്ട്.

കപ്പയും ചേനയും കാച്ചിലുമെല്ലാം ഇനി ഓർമ്മയാകും, പ്രധാന കാരണം കർഷകരുടെ ഒരു പേടി

10 March, 2025 https://keralakaumudi.com/

കല്ലറ: നാട്ടിൻപുറങ്ങളിൽ കിഴങ്ങുവർഗങ്ങൾ ഓർമ്മയാകുന്നു. കാട്ടുമൃഗ ആക്രമണം വർദ്ധിച്ചതോടെയാണ് കർഷകർ കിഴങ്ങുവർഗകൃഷിയോട് വിമുഖത കാട്ടിത്തുടങ്ങിയത്. ഇതോടെ കിഴങ്ങുവർഗങ്ങൾക്ക് കടുത്ത ക്ഷാമമാണ്. ഒപ്പം വിലയേറുകയും ചെയ്തു. കാട്ടുമൃഗങ്ങളെ ഭയന്ന് മലയോരത്തെ കൃഷിയിടങ്ങളിൽ ഒരുകാലത്ത് വിളവെടുത്തിരുന്ന കപ്പ,ചേന, ചേമ്പ്, മധുരക്കിഴങ്ങ്, കാച്ചിൽ, ഇഞ്ചി,മഞ്ഞൾ തുടങ്ങിയവയാണ് അപ്രത്യക്ഷമായിക്കൊണ്ടിരിക്കുന്നത്.

ഇവയുടെ കൃഷിയിൽ നിന്നും കർഷകർ പിന്തിരിഞ്ഞു തുടങ്ങിയതോടെ വിപണിയിലേക്ക് ഉത്പന്നങ്ങളും എത്തുന്നില്ല. കൃഷിയിലേക്ക് തിരികെയെത്താൻ ആഗ്രഹിക്കുന്നവർക്ക് വിത്തുവിളകളും കിട്ടാനില്ലാത്ത സ്ഥിതിയാണ്. കാട്ടുമൃഗങ്ങളിൽ നിന്നും സംരക്ഷിച്ചു നിർത്തി വിളവെടുക്കുന്ന ഉല്പന്നങ്ങൾക്ക് ന്യായവില ലഭിക്കണമെന്നതിനാൽ വില താഴ്ത്തി നൽകാൻ കർഷകരും തയാറാകുന്നില്ല. കാലാവസ്ഥ വ്യതിയാനവും കർഷകർക്കു വെല്ലുവിളിയാണ്.

പകൽച്ചൂടിന്റെ കാഠിന്യമേറിയതും പിന്നാലെ കാലംതെറ്റി പെയ്യുന്ന മഴയുമെല്ലാം ഉത്പാദനത്തെ ബാധിച്ചു.വേനൽമഴ ലഭിച്ചതിനു പിന്നാലെ കിഴങ്ങുവർഗ കൃഷിയിലേക്ക് കർഷകർ തിരിയാറുണ്ടെങ്കിലും അധ്വാനഭാരം ഏറെയാണെന്ന് പറയുന്നു. കൃഷിയിടങ്ങളിൽ കാട്ടുമൃഗങ്ങൾ കടക്കാതെ സംരക്ഷിച്ചു നിർത്തുകയെന്നതു ഭാരിച്ച ജോലിയാണ്. ടിൻഷീറ്റുകൾ കൊണ്ടും സോളാർ വേലി കൊണ്ടും മറ തീർത്താണ് കൃഷിയിലേക്ക് കടക്കാറുള്ളത്.

വിലയിൽ കേമൻ ചേന

വിപണിയിൽ ചേനയ്ക്കാണ് വില കുത്തനെ ഉയർന്നത്. കർഷകന് കിലോഗ്രാമിന് 50-60 രൂപ ലഭിക്കുന്നുണ്ട്. 100രൂപയാണ് വില്പന വില. വിത്തിനങ്ങൾക്കായി ഇതര ജില്ലകളിൽ നിന്നും ചേന എത്തിച്ചു വില്പന നടത്തുന്നുണ്ട്.

മലയോര കർഷകരെ കൃഷിയിടത്തിൽ നിന്ന് കുടിയിറക്കിയത് കാട്ടുപന്നികളാണ്. ഇവ മൂലം ഏറ്റവുമധികം നഷ്ടമുണ്ടായത് കിഴങ്ങുവർഗ കർഷകർക്കാണ്. മരച്ചീനി, ചേമ്പ്, ചേന, മധുരക്കിഴങ്ങ് എന്നിവയോടാണ് കാട്ടുപന്നികൾക്ക് ഏറെ താത്പര്യം. കാട്ടുപന്നി ആക്രമണത്തിൽ നിന്നും കിഴങ്ങുവർഗകൃഷിക്കു സംരക്ഷണം നൽകുകയെന്നത് കർഷകർക്ക് വെല്ലുവിളിയാണ്. ഇതോടെ കൃഷി ഉപേക്ഷിക്കുകയല്ലാതെ തരമില്ലാതായി.

കിഴങ്ങുവർഗ കൃഷി വൻതോതിൽ കുറയാനും കാരണമായി. മരച്ചീനി മാത്രമാണ് മൊത്തമായി കൃഷി ചെയ്യുന്നത്. ഇതാകട്ടെ പന്നി കൃഷിയിടത്തിൽ പ്രവേശിക്കാതിരിക്കാനുള്ള സംരക്ഷണ വേലി അടക്കം നിർമ്മിച്ചാണ് കൃഷി നടത്തുന്നത്.

കൊക്കോയ്ക്ക് വൻ ഡിമാൻഡ്, സംസ്ഥാനത്ത് കൃഷി വ്യാപിപ്പിക്കുന്നു, പ്രോത്സാഹനവുമായി കമ്പനികൾ

05, Mar 2025 https://dhanamonline.com/

ചോക്ലേറ്റുകളിലെ മുഖ്യ ഘടകമായ കൊക്കോ സംസ്ഥാനത്ത് ഹൈറേഞ്ച് മേഖലയിലാണ് പ്രധാനമായും കൃഷി ചെയ്യുന്നത്. കാര്യമായ ചെലവുകളോ പ്രത്യേക പരിചരണമോ ആവശ്യമില്ലാത്തതാണ് കോക്കോ കൃഷി. എന്നാൽ ഇറക്കുമതി വർധിച്ചതോടെ വിലയിടിവ് ഉണ്ടായതും രോഗ ബാധയെ തുടർന്ന് കൊക്കോ ചെടികൾ നശിക്കാൻ തുടങ്ങിയതും ഒരു കാലത്ത് വ്യാപകമായിരുന്ന കൊക്കോ കൃഷിയിൽ നിന്ന് കർഷകരെ പിന്നോട്ട് വലിച്ചിരുന്നു.

എന്നാൽ ഇപ്പോൾ കൊക്കോ കർഷകർക്ക് വലിയ പ്രോത്സാഹനം നൽകുന്ന നടപടിയുമായി എത്തിയിരിക്കുകയാണ് കാഡ്ബറി ചോക്ലേറ്റിന്റെ നിർമ്മാതാക്കളായ മൊണ്ടെലസ് ഇന്റർനാഷണൽ. ആഫ്രിക്കയിൽ നിന്ന് കോക്കോ ഇറക്കുമതിയിൽ വലിയ കുറവ് വന്നതോടെ തെക്കേ ഇന്ത്യയിലും വടക്കു കഴിക്കൻ സംസ്ഥാനങ്ങളിലും കൃഷി വ്യാപിപ്പിക്കാനുള്ള പദ്ധതിയിലാണ് ഇവർ.

വില ഉയർന്നേക്കും

ശരിയായ ജലസേചനം, പരിപാലനം, വളപ്രയോഗം തുടങ്ങിയവ സംബന്ധിച്ച് കർഷകർക്ക് അവബോധം നൽകുന്നതിനും പ്രാധാന്യം നൽകുന്നുണ്ട്. പ്രധാന വിളയായി കൃഷി ചെയ്യുന്ന ആന്ധ്രാപ്രദേശിലാണ് ഇന്ത്യയിൽ പ്രധാനമായും കൊക്കോ ഉൽപ്പാദനം നടക്കുന്നത്. കേരളം, കർണാടക, തമിഴ്നാട് എന്നീ സംസ്ഥാനങ്ങളാണ് തൊട്ടു പിറകിലുള്ളത്.

കഴിഞ്ഞ വർഷം കിലോയ്ക്ക് 1,000 രൂപ പിന്നിട്ട കൊക്കോയുടെ വില തുടർന്ന് പിന്നോട്ട് പോയിരുന്നു. 630 രൂപയാണ് നിലവിൽ ശരാശരി കൊക്കോ വിലയുള്ളത്. ആഫ്രിക്കയിൽ നിന്നുള്ള വരവ് കുറഞ്ഞതും ഉയരുന്ന ഡിമാൻഡും കൊക്കോയ്ക്ക് കൂടുതൽ വില ലഭിക്കാൻ അനുകൂലമായ സാഹചര്യങ്ങളാണ്.

ഉയരുന്ന ആവശ്യം

സെൻട്രൽ പ്ലാന്റേഷൻ ക്രോപ്സ് റിസർച്ച് ഇൻസ്റ്റിറ്റ്യൂട്ട്, കേരള അഗ്രികൾച്ചർ യൂണിവേഴ്സിറ്റി തുടങ്ങിയവയുമായി സഹകരിച്ച് കൊക്കോ തൈകൾ ലഭ്യമാക്കാനുള്ള ധാരണയിലെത്തിയിരിക്കുകയാണ് മൊണ്ടെലെസ് ഇന്ത്യ ഫുഡ്സ് പ്രൈവറ്റ് ലിമിറ്റഡ്. വർഷം 75,000 ടൺ കൊക്കോ മൊണ്ടെലെസിന് ആവശ്യമുണ്ടെങ്കിലും 10,000 ടൺ കൊക്കോ മാത്രമാണ് അവർക്ക് രാജ്യത്ത് നിന്ന് ലഭിക്കുന്നത്.

കൂടാതെ നെസ്ലെയും നിരവധി ആഭ്യന്തര ചോക്ലേറ്റ് കമ്പനികളും കൊക്കോ വാങ്ങുന്നതിന് താൽപര്യം പ്രകടിപ്പിക്കുന്നുണ്ട്. കേരളത്തിൽ നാട്ടിൻ പുറങ്ങളിൽ ഒരിടയ്ക്ക് വ്യാപകമായിരുന്ന കൊക്കോ കൃഷി കൂടുതൽ ഊർജിതമാക്കുന്നതിന് കർഷകർക്ക് പ്രേരകമാകുന്ന ഘടകങ്ങളാണ് ഇവ.