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Farmers Embrace Aromatic Crops to Overcome Challenges

CSIR-IHBT

15th September , 2024

Farmers are increasingly facing difficulties such as reduced profits from traditional crops and damage caused by wild and stray animals. To address these issues, many are turning to aromatic and industrial crops as viable alternatives. In this context, CSIR-IHBT, Palampur, organized an orientation workshop and seed distribution program under the Aroma Mission III on September 13, 2024.
The event saw the participation of 60 farmers from Kangra and Chamba districts.

The chief guest, Prof. Shekhar C. Mande, Distinguished Professor at the Bioinformatics Center, Savitribai Phule Pune University, Maharashtra, and former Secretary, DSIR, Govt. of India, and Director General, CSIR New Delhi, interacted with the farmers. He highlighted that the Aroma Mission aims to double farmers' incomes by promoting the cultivation of high-value aromatic crops and connecting their products with traders. Prof. Mande commended the collaborative efforts of CSIR laboratories in making the mission successful, noting the significant involvement of women farmers.

Dr. Sanatsujat Singh, Head of the Agrotechnology Division at CSIR-IHBT, informed the farmers about various high-yielding varieties of aromatic crops developed by the institute, such as marigold, citronella, chamomile, rosemary, damask rose, and lemon grass, which are well-suited for hilly regions. Mr. Ram Swaroop, Curator of the Palampur Science Center, provided insights into the popular science lecture series.

Dr. Rakesh Kumar, Senior Principal Scientist and Co-Nodal of the Aroma Mission,

emphasized that aromatic and industrial crops have become profitable options for farmers in areas affected by animal menace and rainfed regions, due to their high international market demand. The essential oils derived from these crops are used in perfumes, aromatherapy, food, cosmetics, and pharmaceuticals, making them economically significant.

During the workshop, farmers discussed challenges related to the cultivation of aromatic crops. Progressive farmers from Kangra and Chamba districts, including Pawan Kumar, Chuni Lal, and Om Prakash, shared their experiences with cultivating aromatic marigold and lemon grass, and producing value-added products. These farmers have also formed societies, such as the Jan Kalyan Sabha Paprola Panthed in Baijnath, Kangra, with 1,000 members, and the Pragati Kalyan Kisan Samiti Sihunta in Chamba, with approximately 300-350 members.

The program included the distribution of seeds for marigold, chamomile, palmarosa, and clary sage, encouraging farmers to fully embrace aromatic crop cultivation. Additionally, farmers visited demonstration plots of aromatic crops at the Chandpur Farm of the institute, where they learned about post-harvest processing and storage. They also toured floriculture farms, flower cultivation areas, and the bamboo museum, and observed practical farming demonstrations.

Dr. Sudesh Kumar Yadav, Director of CSIR-IHBT, reiterated the institute's commitment to supporting the agricultural community by revitalizing the economy and doubling farmers' incomes through capacity building and skill development programs under various CSIR mission projects.

Published in:
Himachalheadlines

Farmers Embrace Aromatic Crops to Overcome Challenges

CSIR-NGRI

14th September , 2024

Scientists from the city-based National Geophysical Research Institute (NGRI) have discovered a meteorite in Jonnagiri, Kurnool, Andhra Pradesh. NGRI's chief scientist, Dr Prof PV Sunder Raju, along with his student Dr Linga Raju, identified the meteorite through a series of physical, chemical, and physiological tests. The findings were unveiled during a presentation titled 'A commentary on the discovery of a probable meteorite from Jonnagiri' held at CSIR-NGRI on Friday.

Meteorites are pieces of rock or metal that have fallen to Earth from outer space. While over 90% of meteorites are composed of rock, the rest consist primarily of iron and nickel. Prof Sunder Raju explained that the meteorite in question belongs to the stony-iron type. "The specimen shows typical Widmanstätten structures, along with iron and nickel sulphides, as well as native copper and iron," he said.

Sunder Raju also pointed out that Jonnagiri is well-known for diamonds, which are often associated with meteor impacts. "Studying the geochemistry of kimberlite pipe rocks and conducting mineralogical studies to identify high-pressure minerals can be valuable in determining whether diamonds are formed as a result of impact-generated magmatism," he said. "Our studies cannot rule out the possibility that this meteorite is linked to the mineralisation process, similar to impact sites like the Sudbury structure in Canada and the Vredefort dome in South Africa, which host the world's largest nickel, uranium, and gold deposits," he said.

Published in:

Times of India

India's Pseudo-Satellite: Solar Plane That Can Fly For 90 Days At A Time

CSIR-NAL

14th September , 2024

In what will be a significant addition to India's arsenal, scientists have been developing a solar-powered plane that can fly up to 90 days at a stretch, and a smaller version has been flown successfully for ten hours.

Called a High-Altitude Platform (HAP), it has been developed by the National Aerospace Laboratories (NAL), Bengaluru. HAP is a solar-powered autonomous unmanned aircraft flying at stratospheric levels and is capable of day-and-night operations at altitudes of 17-20 km with an endurance of months. A HAP with a payload is often referred to as a High-Altitude Pseudo Satellite (HAPS). A startup in Bengaluru called New Space Research and Technologies has also developed a similar prototype with 24-hour endurance.

According to NAL, during times of conflict, HAPS can address the perpetual theatre and strategic air asset shortfall, particularly during force mobilisation. It can fill both strategic and tactical roles of ISR (Intelligence, Surveillance, Reconnaissance) and can also provide battlefield communications. When used by air defence services, such aircraft can play an additional role in directing operations.

Reports suggest that, as of now, the only functional HAPS in the world is the Airbus Zephyr, which has demonstrated a 64-day continuous flight in the Arizona desert in the US. Several efforts are on worldwide to develop such platforms, including in the US, United Kingdom, Germany and New Zealand. This makes it a very topical problem for testing the capabilities of the Council of Scientific and Industrial Research-National Aerospace Laboratories (CSIR-NAL).

CSIR-NAL carried out a series of flight trials on the solar-secondary battery subscale High Altitude Platform vehicle earlier this year, at the Defence Research and Development

Organisation's aeronautical test range (ATR) at Challakere, Karnataka. The aircraft was equipped with all payloads and flight systems, though in a reduced size, as would be needed on the full-scale version. The aircraft, which has a wingspan of nearly 12 metres (nearly 40 feet), weighs less than 22 kg when fully equipped.

Eye In The Sky

Dr L Venkatakrishnan, Head, HAPS Program, National Aerospace Laboratories, told NDTV, "It is a potent solar-powered eye in the sky, much cheaper and more versatile than a satellite, easy to deploy and keep in the air for weeks together."

Dr Venkatakrishnan added, "The aircraft met or exceeded all the performance metrics set out for it including a flight endurance of more than 8.5 hours, reaching an altitude of almost 3 km above mean sea level. With a high-performance solar PV (photovoltaic cell) and battery system, the subscale can reach a 24-hour endurance, with a payload of about 1kg, making it useful for several low-altitude activities."

The NAL requirement for a full-scale HAPS includes an assisted launch from the southern tip of India, with the aircraft climbing to above the sub-tropical jet stream (from 5 km to 15 km), which exists over the northern part of the country, before reaching a 20-degree latitude. Other requirements include a service ceiling of 23 km and a payload carrying capacity of 15 kg. The aircraft should also be able to take off from a field with a length of 150-200 metres.

While endurance will be dependent on factors including atmospheric conditions and equipment performance, NAL is aiming to achieve 90 days of HAPS operations. Dr Venkatakrishnan says the final version will have a wingspan which will be as wide as an Airbus 320, but weigh only as much as a regular motorcycle. The biggest advantage of HAPS is that it can be used to continuously monitor enemy territory - day or night - once it is equipped with the right sensors, making it a unique bird in the sky that can keep an eye on some of India's neighbours.

Published in:

Ndtv

ASI and CSIR-NGRI to examine Ratna Bhandar of Shree Jagannath temple on sept 18

CSIR-NGRI

13th September , 2024

The Archaeological Survey of India (ASI) and Hyderabad-based CSIR-National Geophysical Research Institute (CSIR-NGRI) will carry out a preliminary examination of the Ratna Bhandar of Shree Jagannath temple at Puri on September 18, said chief administrator of the temple Arabinda Padhee on Thursday.

While a technical team of ASI will conduct a non-invasive technical assessment of the Ratna Bhandar to determine damages in the structure, CSIR-NGRI experts will examine the chambers to ascertain the geo-physical equipment, light and other elements required for conducting ground penetrating radar (GPR) survey in the treasury. The state government has approved a standard operating procedure (SOP) for the entire process. The investigation, sources said, will be carried out in the afternoon.

The preliminary investigation will be carried out under the supervision of DG ASI by the national conservation body's technical experts including ADG (conservation), director (science), regional director, among others.

ASI's conservation work revolves around the replacement of damaged wrought iron beams on the roof and corbel arch with stainless steel beams and consolidation of the cracks on the walls. Ratna Bhandar inventorisation and preservation committee chairman Justice Biswanath Rath had informed that some of the beams in both the chambers have been entirely damaged and there's a stone hanging from one of them.

The need for a GPR survey in the Ratna Bhandar arose following rumours of the presence of a secret tunnel and more chambers inside the Bhitara Bhandar of the treasury. Earlier, a core panel of the Ratna Bhandar inventorisation and preservation committee had shifted all the jewellery and ornaments from both Bhitara and Bahara Bhandars to temporary strong rooms.

The empty almirahs and chests were shifted to a room beside the Niladri museum on the temple premises. The inventorisation of the jewels and ornaments will begin only after completion of repair and renovation of the Ratna Bhandar by ASI.

Published in:
Newindianexpress

CRRI, IRC's safer school zones model focuses on shared responsibility for child safety

CSIR-CRRI 13th September , 2024

The safety of children on their daily journey to school will no longer just be the responsibility of students and drivers. With the introduction of new 'Safe School Zones' guidelines, the Central Road Research Institute (CRRI) and the Indian Road Congress (IRC) are making road safety a shared commitment, involving everyone—from road agencies to parents—in an effort to curb the rising number of tragic accidents involving young students.

According to National Crime Records Bureau's (NCRB) data nearly 30 young lives are lost each day to road accidents, casting a shadow over the promise of education and childhood. The data also suggests children make up more than 10% of all road accident deaths, with many students commuting via shared vans, school buses, e-rickshaws, bicycles, and even walking.

"As nearly 30 children dying on Indian roads every day, the need for school area to remain safe is important. The previous guidelines, over two decades old, were revised in terms of their scope, as they expected the child to follow the rules but now the responsibility has been distributed among all the stakeholders," explains Mukti Advani, a senior principal scientist at CRRI.

The guidelines emphasise a multi-stakeholder approach. IRC recommends forming a committee, led by school management, that includes road-owning agencies, traffic police, and education department officials. This committee will regularly review safety conditions and ensure that safety measures are being followed. "The guidelines aim to create safer school zones through the collaboration of road-owning agencies, traffic management groups, school administrations, and parents, ensuring the protection of children as they navigate busy streets," Manoranjan Parida, director, CRRI told Education Times.

Key features of new guidelines

The guidelines focus on various safety measures to reduce road accidents in school zones. Parida adds, "The key features include defining school zones, road engineering and traffic management elements such as speed management, walking and cycling infrastructure, and passive safety measures. It also covers traffic safety learning parks, guidelines for parents and children, a checklist for school drivers, and specific road signs for school zones."

These safety guidelines promote safer crossings, organised drop-off and pick-up zones, and enhanced driver awareness, all aimed at reducing traffic-related incidents around schools.

Rahul V Patil, deputy director, IRC, elaborates on IRC's role in developing these guidelines, “IRC, as the apex body of highway professionals, frames and revises guidelines for the road sector. Our documents cover planning, design, construction, operation, and maintenance, taking inputs from research and field data. In this case, CRRI played a significant role, particularly through the IRC H-8 committee, which focuses on urban roads.”

Potential challenges

While the guidelines provide a clear framework for safety, ensuring adherence, particularly to speed limits, remains a challenge. Advani told Education Times, "Speed reduction in school zones to 25 km/h may be difficult with increasing traffic, but safety must be prioritised over speed. Without controlling speed, ensuring children’s safety is challenging."

Proper traffic management during school hours, especially in urban areas, will require coordination between road-owning agencies, traffic police, and school administrations. Citing, varying traffic and road conditions, as another challenge, CRRI will address these differences by focusing on creating adaptable research-backed guidelines, though implementation remains the responsibility of local agencies. The success of these guidelines will ultimately be measured by a reduction in road accidents involving children near schools. "The clearest indicator that we are on the right track will be fewer accidents in these zones," Advani says.

Published in:
Educationtimes

Roorkee institute to retrofit 20 British-era buildings in Shimla

CSIR-CBRI

12th September , 2024

The Central Building Research Institute (CBRI), Roorkee, will undertake retrofitting of the British-era buildings in Shimla district, including the landmark colonial heritage properties, to make these earthquake-resistant,.

The buildings that will be retrofitted in the first phase include Raj Bhawan, Oak Over, Secretariat, Deputy Commissioner's Office, Superintendent of Police's Office, All India Radio Building and Doordarshan. A two-day workshop was organised by the District Disaster Management Authority (DDMA) here today, which was presided over by Additional District Magistrate (Protocol) Jyoti Rana.

There are many old buildings in Shimla district, which need to be retrofitted so that disaster risk can be reduced. In the first phase, 20 old government buildings have been selected for retrofitting in Shimla district. Rana said it was the buildings that cause maximum loss of life during an earthquake, for which we need to make them quake-resistant. Himachal Pradesh falls in the most vulnerable seismic zones four and five, which make these areas highly prone to earthquakes, she added.

The CBRI, Roorkee, has been asked to collect complete data of these buildings. "A form will be given to the department concerned by the state government. On the basis of the data filled in the form, the CBRI will send a proposal to the state government for retrofitting," she stated. Chief Scientist SK Negi and Scientist Ashish Kapoor from CBRI, Roorkee, were present as subject experts. Negi spoke in detail on building byelaws and Kapoor on seismic vulnerability assessment and structural aspects of the building. Officers and employees from the departments concerned were present on the occasion.

Published in:

Tribuneindia

"Global Bio India Unveils 30 Breakthrough Startups, Paving the Way for the Future of Biotech" says Union Minister Dr. Jitendra Singh

CSIR

12th September , 2024

"Global Bio India Unveils 30 Breakthrough Startups, Paving the Way for the Future of Biotech" says Union Minister Dr. Jitendra Singh at the inaugural ceremony of Global Bio India 2024 here today at Pragati Maidan. Addressing the inaugural ceremony of the Global Bio India Conference, Union Minister of State (Independent Charge) for Science and Technology, Minister of State (Independent Charge) for Earth Sciences, MoS PMO, Department of Atomic Energy and Department of Space, MoS Personnel, Public Grievances and Pensions, Dr. Jitendra Singh congratulated DBT and BIRAC for enabling the phenomenal growth and said India's bio economy has experienced remarkable growth, skyrocketing from $10 billion in 2014 to over $130 billion in 2024, with projections to reach $300 billion by 2030.

As India emerges as a Global Biotech Powerhouse, said Dr Jitendra Singh, Prime Minister Narendra Modi will be hailed across the world as the champion of new Biotech Boom, that promises to boost the economy, innovation, jobs, and environmental commitments.

Dr. Jitendra Singh highlighted the 'India Bio Economy Report 2024' brought out by Department of Biotechnology and BIRAC that captures the phenomenal progress made by the Indian Biotech industry. He hailed the visionary leadership of Prime Minister Shri. Narendra Modi guiding is in this new era of Biotechnology transformation. Highlighting the importance of Global Bio-India, Dr. Jitendra Singh said "GBI offers a unique business networking platform for varied participants, including Central and State Ministries, Startups, SMEs, Large industries, Bioclusters, Research institutes, Investors, Incubators, Regulators,

Policy Makers, Business analysts, Legal, IP, CROs, Innovation missions from other countries, international bodies, Industry Associations". Tracing the journey, he lauded the DBT-BIRAC for successfully organising three editions of Global Bio-India. He also recalled that the first Startup Expo for the Biotech Sector was also organized in June 2022 which was inaugurated by Prime Minister, Shri Narendra Modi. Dr. Jitendra Singh called the Global Bio-India 2024 a much bigger event as compared to 2023 with participation from 30+ countries, 500+ exhibitors, 5000+ delegates, 1000+ startups, B2B, B2G, G2G meetings and much more. Dr. Singh said "There are a billion reasons to invest in India, the reasons being India has 60% share of global vaccine production, it has the 2nd Highest number of USFDA approved manufacturing plants outside the USA. Opportunities for investments are available in Bio-Pharma, Bio-Agri, Bio-Industrial, Bio-energy, Bio-Services and Med-Tech."

Underscoring that "Bio-revolution" in India synonymous to the IT Revolution driven by the western world, Dr. Jitendra categorically mentioned the BioE3 (Biotechnology for Economy, Employment, and Environment) Policy recently approved by the Union Cabinet under the leadership of PM Modi.

Sharing details on the BioE3 Policy, he called this policy as the timely intervention at this crucial juncture for our country in the back drop of global climate change to enable creation of a cleaner, greener, and prosperous India. He expressed confidence that the new policy would contribute significantly to the global economy while protecting our environment. He also reiterated the key areas of focus such as bio-based chemicals and enzymes, smart proteins, precision biotherapeutics, climate-resilient agriculture, carbon capture and utilization, and advanced marine and space research. Dr. Jitendra Singh referred to these as the future of biotechnology and drive growth and innovation across various industries. The BioE3 Policy will support this transformation by establishing cutting-edge biomanufacturing facilities, bio foundry clusters, and Bio-AI hubs. The biotech hubs will bridge the gap between research and commercial manufacturing, fostering collaboration between startups, SMEs, and established companies, thereby, boosting High performance Biomanufacturing and Bioeconomy. Integration of AI to analyze large-scale biological data, will pave the way for advancements in

gene therapies, food processing added the minister. Emphasizing on the employment opportunities being created, particularly in tier-II and tier-III cities he stated that biomanufacturing hubs will use local resources and contribute to regional economic development, promoting more inclusive growth. Dr. Jitendra Singh gave clarion call to raise the bar, break barriers, and reach new heights. He said "With the momentum we've gained and the convergence of talent India@ 2047 will be a Biotechnology leader.

Biotechnology Industry Research Assistance Council (BIRAC) signed Letter of Intent with 9 leading international organisations in Biotechnology namely

1.United States Pharmacopeial Convention (USP)
2.UK Research and Innovation (UKRI), UK
3.DHR Holding India Pvt. Ltd. (Danaher)
4.Mauritius Institute of Biotechnology Ltd (MIBL)
5.La Trobe University
6.Blockchain for Impact (BFI)
7.US-India Strategic Partnership Forum (USISPF)
8.IBioM (Indian Biotech MSME and Startup Foundation)
9.Bharat Startup and Innovation Society (BSIS)- Bharat Startup Festival

The Indian Bio Economy Report 2024 was also launched at the Global Bio India 2024 along with BIRAC Compendium of Products and Technologies 2024. In addition to this the event also witnessed the launch of GBI Exhibitor Directory coupled with Insights into BIRAC Equity Fund and Amrit Grand Challenge JanCARE Innovations Report.

Dr. Kiran Mazumdar Shaw Executive Chairperson, Biocon Limited called for enhanced cooperation and collaboration to increase market share and volume of India's Pharmaceutical sector. He also said "Biology will drive the economic growth in future economy with leveraging innovation, investment, in intellectual property and sustainable growth. Dr. Tina Sejersgard Fano Executive Vice President, Planetary Health BioSolutions, Novonesis thanked

India for the Bio E3 policy and said "We need solutions for economy as well as environment." Prof. Ajay Kumar Sood, Principal Scientific Adviser, Government of India quoted the 'Australian Strategic Pacific Institute ASPI' report and said India is among the top countries in 45 out of 64 technologies as per the report and on 2nd position in Bio-tech manufacturing.

Dr. Rajesh S. Gokhale Secretary, Department of Biotechnology, Chairman, BIRAC and DG-iBRIC highlighted the pivotal role of such international conference. Dr. (Mrs.) N. Kalaiselvi DG, CSIR called this as the decade of Innovation and research; Mr. G S Krishnan President, Association of Biotech Led Enterprises; Dr. Jitendra Kumar Managing Director, BIRAC were also present at the inaugural ceremony.

Published in:
Pib

CSIO & PEC Joint Workshop on "Image Processing for Biomedical Applications (CPWIP-2024)" held at PEC

CSIR-IHBT

08th September , 2024

The Department of Computer Science and Engineering at Punjab Engineering College (Deemed to be University), Chandigarh, organized a joint workshop, CSIO & PEC Joint Workshop on "Image Processing for Biomedical Applications (CPWIP-2024)", on 11th September 2024. This workshop was a collaborative effort between CSIR-CSIO, Chandigarh, and PEC, Chandigarh.

It featured prominent experts, including Prof. Dinesh Kumar (RMIT University, Melbourne, Australia), Dr. Prashant K Mahapatra (Senior Scientist, CSIR-CSIO), Prof. Tirlok Chand (Chairperson), Prof. Padmavati (Coordinator), and Prof. Sudesh Rani (Coordinator). The focus of the workshop was the latest advancements in image processing for biomedical applications, with participation from over 100 attendees across the country, both online and offline.

Prof. Padmavati highlighted the workshop's focus on cutting-edge developments in biomedical applications, medical diagnostics, treatment planning, and healthcare solutions. The workshop brought together renowned experts from CSIO, PEC, and RMIT Australia, offering participants valuable insights into the latest technologies, methodologies, and their practical applications in the biomedical field.

Prof. Dinesh Kumar (RMIT University, Australia) shared his expertise on image processing, particularly in the context of Parkinson's disease. He provided insights into the use of AI and imaging methods for assessment and treatment. He also discussed the diagnosis of Hippus and Glaucoma through the pupil light reflex mechanism and data analysis of neuro-optic

nerves. Prof. Kumar emphasized that while AI healthcare devices can support clinical diagnosis, the final decision remains with the clinician, who may choose to override the device's recommendations. Dr. Prashant K Mahapatra elaborated on thermal imaging (thermography) as a biomedical application, focusing on soft-tissue injuries.

He explained that thermography offers non-radiative, non-invasive diagnostic solutions that improve the accuracy of treatments for a range of diseases. Additionally, he noted the growing use of virtual reality in medical services. Dr. Sudesh Rani provided an overview of deep learning in healthcare, collaborating with undergraduate, postgraduate, and PhD students.

She emphasized the increasing role of deep learning in medical imaging, detailing its application in detecting osteoarthritis (OA), pneumonia, COVID-19, tuberculosis, and chest infections. The workshop concluded on a high note, with participants leaving with valuable knowledge and a deeper understanding of the future of biomedical image processing.

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