

Seed Connect

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To maintain the profitability of agriculture in future, while tackling climate change and associated challenges, adoption of eco-friendly practices and technology is the most suited option. The Sixth Synthesis Report of the IPCC states that the global temperatures have already risen by 1.1 degree, which has led to frequent and intense extreme weather conditions. UN Secretary General has said that he is looking toward India led G20 to tackle the issue for emerging and developing economies of the world that happen to be most impacted by climate change. If the temperature increase is not curbed, for every 1–4 degree increase India's rice production is expected to fall by 10–30% and maize production by 25–70%. The productivity deficits will impact national economic growth as well as food security. South Asia is home to about 25% of the global population and is vulnerable to severe weather and food insecurities. The government has taken multiple initiatives to support sustainable agriculture. This includes adoption of eco-friendly practices like water-efficient irrigation systems, agroforestry, and conservation agriculture as well as use of technology enable seeds and farm inputs. For example, digital technology enables farmers to make more informed decisions about crop selection, fertilizer and pesticide use as well as harvest time. This in turn leads to efficient resource use, minimal soil run-offs and water contamination. Use of input efficient, pest and disease resistant and climate resilient seeds also improves productivity and can help reduce land use. Problems like crop residue management can be resolved through use of technology and mechanization. Successful adoption of sustainable technology requires financial support that is being extended by the government as well as capacity building and awareness generation by organizations at the grassroots, that can educate and demonstrate the clear short- and long-term advantages of sustainable agriculture. This and many other topics have been covered in this month's Seed Connect. We hope you shall find it useful.



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News from India and Around the World

"We need to focus on creating value-added products from crop residue"

A startup is also building packaging solutions using crop residue. It has developed a patent-pending technology, Fumasolv, to extract Lignin from crop residue to develop packaging solutions. The startup operates on the B2B model and sells its boards and packaging materials to businesses. It also works on research and development to create custom-made packaging solutions for its clients.

J&K launches project to promote sustainable agriculture

<https://www.thekashmirmonitor.net/jk-launches-project-to-promote-sustainable-agriculture/>

The Jammu and Kashmir government has initiated a programme to support its farmers and promote sustainable agriculture in the union territory. The government has earmarked an amount of Rs 84 crore to support the programmes over the next five years. The initiative is part of a larger effort to promote sustainable agriculture, commercial agriculture and healthy food production.

Govt. initiatives and sustainability: The path to growth for Indian farmers

<https://timesofindia.indiatimes.com/blogs/voices/govt-initiatives-and-sustainability-the-path-to-growth-for-indian-farmers/>

Agriculture is the backbone of the Indian economy, with over 50% of the population dependent on it for their livelihood. In recent years, the implementation of new technologies has helped Indian farmers to prosper and has also contributed to the growth of the economy. One of the major ways in which

technology is helping Indian farmers is through precision farming. This involves the use of modern equipment and technology to optimize crop yields as well as cause less harm to the environment.

Fad to Global Super Food: What India Needs to do to Promote Millets

<https://thewire.in/agriculture/millet-promotion-india-government-strategy>

Over the past few years, millets have been branded as a superfood, diet for all human ailments, climate-smart, good for soil health, and much more. They are depicted as emblematic of India's "forgotten great culture and tradition". This has naturally led to a focus on millet farmers who have been struggling with stagnant yields and declining incomes. However, there is no conclusive number of millet farmers in the country, as only 11% of the total sown area for food grains is under millets, which, in turn, account for just 6% of foodgrain output.

J&K Govt Launches Project Worth Rs 84 crore to Encourage Sustainable Agriculture

<https://krishijagran.com/news/jk-govt-launches-project-to-encourage-sustainable-agriculture-with-emphasis-on-organic-farming/>

According to an official release, the J&K government launched a programme to support its farmers and promote sustainable agriculture in the Union Territory, in response to growing health concerns and demand for organic food. The government is investing in a project that will increase organic food production and economic returns for UT farmers.

As a heatwave spectre hangs again over India's wheat harvest, its home-grown crop simulation model can help

<https://www.downtoearth.org.in/news/science-technology/as-a-heatwave-spectre-hangs-again-over-india-s-wheat-harvest-its-home-grown-crop-simulation-model-can-help-85499>

Currently, the country does not have a system to forecast crop loss due to heatwaves or most other extreme weather conditions. The Mahalanobis National Crop Forecast Centre, under the Union Ministry of Agriculture and Farmers Welfare, provides pre-harvest forecasts for eight major crops at the national, state and district levels. The agency also puts out forecasts accounting for drought events, but not for other extreme weather conditions. Besides, the agency forecasts with static crop models, which cannot factor in real-time changes. The IARI scientists, in contrast, used InfoCrop version 2.1, India's only dynamic crop simulation model developed and released by the institute in 2015 to study the long-term impact of climate change and crop management practices on yield.

India expresses confidence that G-20 summit will come up with new solutions to boost farm

productivity

<https://theprint.in/economy/india-expresses-confidence-that-g-20-summit-will-come-up-with-new-solutions-to-boost-farm-productivity/1369634/>

India on Monday expressed confidence that the G-20 meet will bring out solutions like new technologies for enhancing farm productivity, which is key for tackling the global food security concerns. India, the world's second largest wheat producer, and largest producer of fruit and vegetable, also said it will play a major role in feeding the world keeping in mind the global food security concerns, while asserting that every nation should work towards sustainable agricultural practices.

Plant Breeding to Stop Allergies

<https://seedworld.com/plant-breeding-to-stop-allergies/>

Allergies and food intolerances to peanuts and wheat are extremely common these days. Plant breeders are working on ways to try and make these foods accessible to all, no matter an allergy or food intolerance.

ICAR has released two thousand crop varieties in eight years

<https://vigyanprasar.gov.in/isw/Icar-has-released-two-thousand-crop-varieties-in-eight-years.html>

The Indian Council of Agricultural Research (ICAR) has released a total of 2122 crop varieties of food crops, oil seeds, pulses, commercial crops, horticultural crops, potential crops and fodder crops during a short span of last eight years (2014-2022). Union Minister of Agriculture and Farmers Welfare, Narendra Singh Tomar has shared this information in parliament.

The key role of sustainable agriculture in improving livelihoods and enhancing food security

<https://timesofindia.indiatimes.com/blogs/voices/the-key-role-of-sustainable-agriculture-in-improving-livelihoods-and-enhancing-food-security/>

Agriculture is the backbone of our food system, and with the global population reaching 8 billion in 2022, our society increasingly depends on the sustainability of this sector to produce the 60% more food that we will need to produce globally by 2050. In the light of this, and with climate change increasingly impacting crop yields, we must transition to more sustainable agricultural practices to meet the needs of present and future generations.

What India can learn from Odisha's cultivation of hardy, nutritious millets

<https://bit.ly/3XQJ542>

To ensure the adoption of millet cultivation by a substantial number of Odisha farmers over significant

acres, and their production in large quantities. Odisha is mainly a rice producing and eating state. Its average annual production of rice is about 9.5 million tonnes. About 15 per cent of this is surplus. Rice is 91 per cent of the state's total cereal production and 83 per cent of its foodgrain – cereals and pulses – output.

Indian Textiles Ministry makes certification mandatory for cotton quality

<https://www.livemint.com/news/india/centre-approves-quality-control-order-for-mandatory-certification-of-cotton-bales-11676990866845.html>

<https://www.thehindubusinessline.com/economy/agri-business/indian-textiles-ministry-makes-certification-mandatory-for-cotton-quality/article66540516.ece>

The Centre has approved the Quality Control Order (QCO) for mandatory certification of cotton bales, which is expected to augment supply of quality cotton to the textile industry, according to the Ministry of Textiles. According to officials, the compulsory requirement of Bureau of Indian Standards (BIS) certification for cotton bales sold in India is expected to check imports of substandard cotton and ensure domestic cotton meets certain minimum quality parameters.

FSSAI specifies comprehensive group standard for millets

<https://nuffoodsspectrum.in/2023/02/24/fssai-specifies-comprehensive-group-standard-for-millets.html>

The Food Safety and Standards Authority of India (FSSAI) has specified a comprehensive group standard for millets vide Food Safety and Standards (Food Products Standards and Food Additives) Second Amendment Regulations, 2023 notified in the Gazette of India and the same will be enforced w.e.f. 1st September 2023. Currently, individual standards for only a few millets like Sorghum (Jowar), Whole and decorticated Pearl Millet grain (Bajra), Finger Millet (Ragi) and Amaranth are prescribed in the Food Safety and Standards (Food Product Standards and Food Additives) Regulations, 2011. FSSAI has now framed a comprehensive group standard for 15 types of millets specifying 8 quality parameters i.e., maximum limits for moisture content, uric acid content, extraneous matter, other edible grains, defects, weevilled grains, and immature and shrivelled grains, so as to ensure availability of good quality (standardised) millets in domestic and global markets.

ICRISAT to accelerate microbiome-based solutions for improved nutrition

<https://nuffoodsspectrum.in/2023/02/24/icrisat-and-eagle-genomics-to-accelerate-microbiome-based-solutions-for-improved-nutrition.html>

A new cooperation framework has been signed between the International Crops Research Institute for

the Semi-Arid Tropics (ICRISAT) and Eagle Genomics at the International Conference on Innovations to Transform Drylands, held in Hyderabad. The MoU would help underpin next-generation innovation to safeguard the lives and livelihoods of the over two billion people living in the drylands of Asia, Africa and beyond. It will contribute to safe and nutritious food for all, through a shift to sustainable consumption and nature-positive production systems that can drive One Health outcomes for humans, animals, and the environment.

Indigo Ag completes of its second carbon crop, with more than 110,000 agri- carbon credits

For the first and second carbon crops, Carbon by Indigo farmers were paid \$30/credit, a 200 per cent increase over the original guaranteed payment rate. US based Indigo Ag, the premier sustainability partner of the agriculture industry, announced the completion of its second carbon crop, consisting of more than 110,000 agricultural carbon credits. Issued by one of the world's most trusted carbon registries, the Climate Action Reserve, Indigo's second crop of credits was produced by U.S. farmers enrolled in its industry-leading carbon farming program, Carbon by Indigo.

GRDC invests \$12.7M to integrate indigenous wheat varieties into Australian agriculture

The Grains Research and Development Corporation (GRDC) is investing \$12.7 million in a four-year national research project to integrate long coleoptile wheat into Australian farming systems. The research will explore a range of genetic, environmental, and management factors relating to lengthy coleoptile wheat implementation. The project aims to mitigate sowing risks for growers and provide greater flexibility around sowing time. The project will be led by CSIRO, Australia's national science agency, with research parties including the University of Melbourne, NSW Department of Primary Industries, QLD Department of Agriculture and Forestry, SLR Agriculture, the WA Department of Primary Industries and Regional Development, the University of South Australia, and EPAG Research.

FAO and SEED launch SDG Agrifood Accelerator Programme for global innovators

The Food and Agriculture Organization of the United Nations (FAO) and the SEED partnership today officially launched the SDG Agrifood Accelerator Programme, an instrument designed to help agrifood system start-ups develop their businesses while contributing to the UN's Sustainable Development Goals (SDGs). During a virtual event held at FAO's headquarters in Rome, 12 innovators from around the world used a workshop to showcase how they are contributing to the SDGs while supporting such a transformation in their local context.

Indian horticulture body develops new low-cost structures to boost vertical farming

<https://www.thehindubusinessline.com/economy/agri-business/indian-horticulture-body-develops-new-low-cost-structures-to-boost-vertical-farming/article66532638.ece>

The ICAR-Indian Institute of Horticulture Research (IIHR) has developed a new vertical farming structure for “protected” cultivation of crops such as cabbage and cauliflower, besides flowers like lily and gerbera. The new structure, which can be as high as 12 feet, leads to effective space utilisation in a poly-house. This can result in productivity rising by up to six times compared to conventional farming.

Indian Agriculture at the cusp of ‘tech-celeration’

<https://www.thinkag.co.in/post/indian-agriculture-at-the-cusp-of-tech-celeration>

A collaborative approach between the government, the private sector and the technology providers can uplift India’s agriculture sector. Our country’s new-age companies are playing a critical role in building innovative and affordable solutions for farmers. Thus, enhancing their collaboration with legacy companies having existing farmer relations will go a long way in enhancing farmers’ productivity and profitability. Parallely, the increasing trend of children of Indian farmers being less likely to take up farming means that there is a need for industry to further collaborate with government at the grass-roots level. For instance, a programme like FALI – wherein students from class 8 and 9 receive specialised training on different elements of agriculture – is showing green shoots as we are seeing more children of farmers opting to pursue farming as a career.

Research News

Researchers Unlock the Evolutionary Secrets of a Cancer-Fighting Chinese Medical Herb

<https://scitechdaily.com/researchers-unlock-the-evolutionary-secrets-of-a-cancer-fighting-chinese-medical-herb/>

An international collaboration of researchers led to sequencing of skullcap plant’s genome. It helped identify how the plant produces a compound called scutebarbatine A that is known to act against a range of cancer cells. The skullcap plant (*Scutellaria barbata*) is more commonly known in China as banzhilian. It is used for the treatment of different medical conditions in Traditional Chinese Medicine (TCM). The powder is given to patients to be taken as a decoction. Previous clinical work showed that preparations based on the skullcap plant during chemotherapy could reduce the risk of metastatic tumors in patients.

Genomics Help Bring Climate-smart Strawberries in Warmer Regions

<https://asiafoodjournal.com/singrow-launches-climate-resilient-strawberry-variety/>

A Singapore-based company recently launched the world’s first climate-resilient strawberry. Their purpose is to make strawberries more affordable to consumers while reducing the environmental impact of their production. According to the developers, genome-based technology is more productive

than conventional breeding. The same technology can be used for other staple crops like rice, corn, and selected vegetables facing challenges brought on by climate change. They are currently expanding the list of their crop products.

Perennial Grains Could be the Future of Sustainable Agriculture

<https://www.eesi.org/articles/view/perennial-grains-could-be-the-future-of-sustainable-agriculture>

Agricultural grains, which make up more than 70 percent of global croplands, are almost always annual crops. They must be replanted every year and require farmers to use soil-intensive practices such as tilling, ploughing, and applying herbicides. The well-developed root systems of perennial grain crops (which live for more than two years) extend deep into the ground and help the soil absorb water and carbon dioxide. They also protect the soil from erosion with continuous coverage.

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