The FAO report on The Status of Women in AgriFood Systems evaluates women's participation, benefits, as well as challenges faced by them in agrifood systems globally. The report shows how increasing women's empowerment and gender equality in agrifood systems enhances women's well-being, improve their households, creating opportunities for economic growth, increase productivity and resilience. The report estimates that eliminating discrimination against women in agriculture could increase the size of the world economy and reduce hunger at a time when a record 345 million people are expected to face acute food insecurity. Closing the gender gap in farm productivity and the wage gap in agrifood systems would increase global gross domestic product by 1%, or nearly $1 trillion. In India agriculture is a major employer for both men and women. Since 2011 some gender gaps have been filled in livestock as well as fisheries, but multiple issues prevail on the crop farms. Women formed 38% of the workforce in crop, livestock, and fisheries sector in 2019 globally. Though a decrease in women employed in agrifood systems was observed in India since 2005, women landowners have increased substantially in India from 15 % to 42 % over the last decade. As per the report India has done well on exposure of young girls to female role models as well as closure of the education gap. India has been paying attention to women empowerment in agriculture but needs a major thrust to harness this resource.

Besides a comprehensive analysis of the available evidence on gender equality and women's empowerment in agrifood systems over the last decade, the report also provides policymakers and development actors with an extensive review of positive developments, formal and informal structural constraints to equality and adoption of gender-transformative approaches.

We hope this as well as other agriculture and research related reports in the newsletter are a useful read for you.

Mallika Verma

Director- Government Affairs

Federation of Seed Industry of India

News from India and Around the World

J&K to produce shiitake mushrooms from September

Jammu and Kashmir will start commercial cultivation of shiitake mushrooms in September. Shiitake mushrooms (Lentinus edodes), native to Japan, are a type of edible fungus and contain a chemical called lentinan, which is used by some medical professionals to enhance the immune system. Field trials and standardisation of mushrooms are successful.

ICRISAT partners with IOPEPC to boost India's oilseed production and export

Hyderabad based International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Indian Oilseeds & Produce Export Promotion Council (IOPEPC) signed a Memorandum of Understanding (MoU) to enhance the production of quality oilseeds in India. The MoU was signed by ICRISAT's Director General, Dr Jacqueline Hughes, and IOPEPC's Chairman, Nilesh Vira, with the aim of strengthening long-term cooperation to increase the quantum and quality of oilseeds grown in India.

Union Minister Narendra Singh Tomar Inaugurates Seed Processing and Storage Facility at Indian Grassland and Fodder Research Institute, Jhansi

https://indiaeducationdiary.in/union-minister-narendra-singh-tomar-inaugurates-seed-processing-and-storage-facility-at-indian-grassland-and-fodder-research-institute-jhansi/

Union Agriculture and Farmers Welfare Minister Shri Narendra Singh Tomar inaugurated the seed processing and storage facility at Indian Grassland and Grassland Research Institute, Jhansi, an institution under the Indian Council of Agricultural Research (ICAR). Women's farmers conference was also organized on this occasion. On this occasion, Director General of ICAR, Dr. Himanshu Pathak, Chancellor of Rani Lakshmi Bai Central Agricultural University, Jhansi, Dr. Panjab Singh and Vice Chancellor Dr. A.K. Singh were present.

University of Adelaide receives $1.8 Mn funding for strengthening India's agriculture sector

The University of Adelaide will play a leading role in strengthening India's agriculture sector as part of a ground-breaking project which has received $1.8 million in funding from the Federal Government. The project will identify critical and emerging jobs that require advanced practices that will meet India's

emerging agricultural skills needs. The University of Adelaide will lead a consortium of highly experienced partners from the vocational training and agriculture sectors in both countries, including Skills Impact, Central Queensland University, the National Skills Foundation of India and the Agricultural Skills Council of India.

Nagaland: SAMETI organizes training on climate resilient agriculture

https://nagalandpost.com/index.php/nagaland-sameti-organises-training-on-climate-resilient-agriculture/

A two day programme on smart practices and technologies for climate resilient agriculture for Agricultural Technology Management Agency (ATMA) functionaries was organized by the State Agricultural Management and Extension Training Institute (SAMETI) on March 15-16 at SAMETI, Medziphema.

Y20 at GNDU: Agri-tech, youth migration remain key issues

https://www.tribuneindia.com/news/amritsar/y20-at-gndu-agri-tech-youth-migration-remain-key-issues-488461

Scholars from various national and international institutions addressed the youth from India and other countries as the Y20 Consultation Summit was inaugurated by Education Minister Harjot Singh Bains today at GNDU. More than 50 international and a large number of national delegates from G20 and other countries deliberated in the four sessions dedicated to agricultural, future in industry and global opportunities in jobs market.

Prime minister inaugurates the Global Millets Conference

https://www.foodtechbiz.com/events/prime-minister-inaugurates-the-global-millets-conference?utm_source=FoodTechBiz&utm_campaign=f92454921c-EMAIL_CAMPAIGN_2023_02_19_11_14_COPY_01&utm_medium=email&utm_term=0_-ed38c53124-%5BLIST_EMAIL_ID%5D

The prime minister inaugurated the Global Millets Conference at Subramaniam Hall, NASC Complex, IARI Campus, PUSA New Delhi. The two-day global conference will have sessions on all important issues related to millets like promotion and awareness of millets among producers, consumers, and other stakeholders; millets' value chain development; health and nutritional aspects of millets; market linkages; research and development.

Bihar Agriculture University develops two products for reducing farming costs

https://timesofindia.indiatimes.com/city/patna/bihar-agriculture-university-develops-two-products-for-reducing-farming-cost/articleshow/98927840.cms

The researchers of Bihar Agriculture University (BAU) at Sabour in Bhagalpur have invented two other innovative products for reducing farming cost substantially The BAU has applied for patent for the two products Nano Phosphorus and Hydro Gel. The products increase the soil health and water availability in arid zones.

Australia to launch world-first satellite water monitoring system supporting aquaculture

Australia's national science agency, Commonwealth Scientific and Industrial Research Organisation (CSIRO), has launched a mission to deliver a world first ground-to-space water quality monitoring system. CSIRO is Australia's pre-eminent national science organisation, accelerating innovation through global science. Through AquaWatch Australia, CSIRO is working with partners internationally to help safeguard freshwater and coastal resources.

Vietnam's dragon fruit export turnover reaches $47 Mn in Jan, Feb

Vietnam's total dragon fruit export turnover has reached more than $47 million this year, down 48.7 per cent over the same period last year, according to the Ministry of Agriculture and Rural Development. Vietnamese dragon fruit is being exported to more than 40 countries and territories. Which, China, India, the US, Thailand, the Netherlands, and Japan are the biggest importers of Vietnam's dragon fruit. However, in the first 2 months of 2023, the number of Vietnam's dragon fruit import markets decreased sharply; specifically, export turnover to Korea decreased by 25.9 per cent and Japan by 35.4 per cent over the same period last year.

Forum announces Call to Action in response to worsening climate and eco-system forecast

https://forumforag.com/article/call-to-action/

Having just emerged from a global pandemic, where the food and agriculture system proved its flexibility and resilience, conflicts, such as the one in Ukraine, and record-busting high temperatures again remind us of its potential fragility, which will only be exacerbated further by global warming and the loss of biodiversity. A landmark report from IPBES found that nature is declining at an unprecedented rate in human history with the rate of species extinction accelerating. At the same time, the latest warnings from the IPPC make clear that we have a final chance this decade to limit global warming to 1.5C after which we will be on an irreversible course that will make some parts of this planet uninhabitable and others increasingly inhospitable.

Climate Extremes Heat and Drought Reduce Crop Yields

https://www.nature.com/articles/s41598-023-29378-2

A study conducted by researchers at Aalto University in Finland reports that from 1980 to 2009, farmers had to deal with growing seasons that were too hot and dry for their crops. The paper

published in *Nature* also reveals that increasing heat and drought bring down crop yields globally. Wheat growers saw the biggest change, according to the paper, with the chance of extreme heat and drought during the growing season increasing six-fold over the study period while the risk for maize, rice, and soybeans doubled. The researchers found that heat and drought conditions reduced wheat yields by about 4% overall, though some regions saw much greater reductions, such as Russia and China, both major global producers. Likewise, maize yields were about 3% lower because of hot and dry weather, but the losses were more severe in North America, Eastern Europe, and China.

How innovation can make the world more sustainable

https://economictimes.indiatimes.com/industry/renewables/how-innovation-can-make-the-world-more-sustainable/articleshow/99206034.cms?from=mdr

Ranging from renewable energy to transportation, agriculture, construction, healthcare, and manufacturing, innovative technologies hold the potential to create a brighter and more sustainable future for all of us. The increasing adoption and research of renewable energy technologies, such as solar panels, wind turbines, floating solar panels, green hydrogen, carbon capture, bioenergy, tidal/wave energy, geothermal energy, and hydrogen fuel cells, signals a shift towards clean energy and reduced reliance on fossil fuels.

USDA Recognizes Outstanding Innovations in Climate-Smart Agriculture, Soil Health & Nutrient Management

https://krishijagran.com/agriculture-world/usda-recognizes-outstanding-innovations-in-climate-smart-agriculture-soil-health-nutrient-management/

Agriculture Secretary Tom Vilsack announced that the United States Department of Agriculture (USDA) will invest USD 40 million this year in 31 new projects through its Conservation Innovation Grants (CIG) program, which is one of the ways USDA collaborates with partners to develop innovative approaches to climate-smart agriculture.

United States promises Africa 7 billion dollars to tackle climate crisis and food insecurity

https://allianceforscience.org/blog/2023/04/united-states-promises-africa-7-billion-dollars-to-tackle-climate-crisis-and-food-insecurity/

United States vice president Kamala Harris's nine-day visit to Africa saw her discuss with leaders measures to tackle the continent's food insecurity and climate crisis challenges. She visited Ghana, Tanzania, and Zambia. The commitments from 27 different institutions are in the areas of climate-smart agriculture, sustainable farming, clean energy, and clean transportation. The White House said

the investments will support farmers with solar irrigation facilities, digital platforms, insurance, tree planting projects, eco-friendly and sustainable production methods, biofertilizers, ariel imagery and artificial intelligence, and waste treatment innovations.

Gender equality in agriculture could add $1 trillion to world economy
https://www.livemint.com/economy/gender-equality-in-agriculture-could-add-1-trillion-to-world-economy-11681395610508.html
Eliminating discrimination against women in agriculture could increase the size of the world economy and reduce hunger at a time when a record 345 million people are expected to face acute food insecurity.

Niti Aayog Wants States to Make Own Agritech Policy
https://www.veetrack.com/showarticles.aspx?UName=496465616C6D65646961&id=3234353231373238
The NITI Aayog has suggested states formulate their specific Agritech policy to promote agriculture-based startups while enabling digitalisation of licensing regime, ensuring access of quality data and last mile connectivity to such startups to expand operations. In its white paper, the Aayog said that the agritech solutions available in the market are making the lives of smallholders better by improving access to quality input, market, reducing risks, access to information, and a host of other products and services, resulting in improved productivity and price realization.

Research

News

Vertical Integration of Digital Platforms in the Agriculture Industry

Vertical integration is a strategic option for a company that aims to have direct control over its value chain. With regards to digital platforms, vertical integration as a strategy is, to an extent, paradoxical, since platforms' operating models are largely based on external actors with whom the platform owners have only an arm's-length relationship. Many large digital platform companies have pursued vertical integration and research has been conducted on the subject, yet it is often industry-agnostic and focuses on large digital platform companies.

Wheat Gene for Yellow Mosaic Virus Resistance Sequenced

The genome sequence of a gene in wheat responsible for resisting the devastating Wheat Yellow Mosaic

Virus (WYMV) has been discovered by a team of scientists from the University of Melbourne, providing vital clues for managing more resistant crops and maintaining a healthy food supply. The demand for wheat varieties that can resist WYMV is high as wheat crops across the Americas, Asia, Europe, and Africa are frequently ravaged by the disease. WYMV reduces grain yield by up to 80 percent, causing significant economic losses. The study, published in *PNAS*, found that the resistance gene came from an ancient Mediterranean wild plant relative of wheat.

International Research Team Released Faba Bean Genome

An international team of scientists from Europe and Australia, led by the University of Reading (UK), Aarhus University (Denmark), and the University of Helsinki (Finland), has sequenced the faba bean genome for the first time. At 13 billion bases, the faba bean genome is more than four times the size of the human genome. The project to fully decode the faba bean genome searched for genes involved in seed size. The research team also looked at the color of the hilum, the scar left when a bean detaches from the pod, to find the genes that determine this distinctive feature.

Chinese scientists pinpoint gene to boost crop yields in high-alkaline soils

https://www.scmp.com/news/china/science/article/3214838/chinese-scientists-pinpoint-gene-boost-crop-yields-high-alkaline-soils

Although salinity tolerance has been studied extensively, alkalinity tolerance in plants has not been studied in depth. Chinese scientists have identified a gene that allows crops to grow in salty soil, a discovery that allowed them to produce modified sorghum and rice crops that improve yields by at least 20 per cent and produce more nutrients. The research initially focused on sorghum, a crop that originates from central Africa and has evolved to help it tolerate sodium-rich soils. The team's work started by searching a natural gene database using a genome-wide association study (GWAS), a painstaking statistical method that examines the entire genome of individual plants to look for associations between millions of genetic variants and specific traits.

Wheat disease's global spread concerns researchers

https://www.nature.com/articles/d41586-023-01043-8?utm_source=Nature+Briefing&utm_campaign=842939c794-briefing-dy-20230412&utm_medium=email&utm_term=0_c9dfd39373-842939c794-43919645

Genomic analysis reveals that the wheat blast fungus spread independently from South America to two other continents. Outbreaks of the 'wheat blast' pathogen *Magnaporthe oryzae* in parts of Africa and Asia originated from a single family of the fungus that was imported from South America, researchers

report on 11 April in *PLoS Biology*[1]. Scientists warn that this lineage could strike elsewhere or develop worrying traits such as fungicide resistance and the ability to affect other important food crops.

Researchers Find Herbicide Resistance in Blackgrass Caused by Pre-existing Genetic Variation

In Europe, blackgrass has become the most economically damaging herbicide-resistant weed. Farmers all over Europe face an increasingly difficult battle against blackgrass. The team of scientists led by Detlef Weigel (Max Planck Institute for Biology Tübingen) and Karl Schmid (University of Hohenheim) studied the evolutionary mechanisms of how resistances arise. The two most common herbicides that have been used against blackgrass impede the activity of either one of two proteins, which are both vital for the weed to thrive. The researchers generated a reference genome of blackgrass and analyzed the genetic structure of resistant populations. The team found that variation in most resistant populations indicates that the spread of the resistances is the result of pre-existing gene variants, and only to a lesser degree of spontaneous mutations.