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National News

Speakers Call for Efforts to Promote Organic Cotton Production in Pakistan

MULTAN: Speakers in a three day workshop called for organic cotton production which aims to bring sustainability by reducing the use of pesticides, synthetic fertilisers and water. During the workshop, Hafiz Muhammad Bakhsh, Manager, WWF-Pakistan gave the participants a complete orientation on organic cotton farming and the standard requirements for organic certification. He added that we can contribute a big share of organic cotton in the world apparel industry if we ensure production and availability of non-GM cotton seeds and other bio-inputs. Asad Imran, Director Food and Markets, WWF-Pakistan said that organisation strives to ensure sustainable production of cotton and reduce its negative impact on soil health, biodiversity and freshwater resources. They said that there is a high demand of certified organic cotton and the local textile groups are aligned to feed the global cotton market with the certified organic cotton sourced from Pakistan.

While commenting on the event, the representatives of different textile groups acknowledged the efforts of WWF-Pakistan, the Department of Agriculture, Balochistan, and Laudes Foundation, which have collectively laid the foundation of organic cotton cultivation in Pakistan.

He explained that WWF-Pakistan is promoting organic cotton with sustainable practices, which has resulted in a 22 percent reduction in pesticides, 12 percent reduction in the use of irrigation water and 19 percent reduction in the use of synthetic fertilizer, which ultimately reduces the per unit greenhouse gas emissions at the farm level, compared to cotton produced by non-participating farmers. They also stressed that organic cotton supports biodiversity conservation and promotes agro-forestry in Pakistan, whereas conventional cotton production practices, with excessive use of chemical fertilisers and pesticides, pose threat to a wildlife and lead to degradation of habitats and ecosystems.

Syed Habib Shah, FP-DAE, Balochistan said “We, in collaboration with WWF-Pakistan, are highly enthusiastic to promote organic cotton production and ensure its certification under the global organic standards. To address this, WWF-Pakistan is building the capacity of farmers on sustainable cotton production as per the Better Cotton Initiative and Organic Cotton Standard System in some districts of Punjab, Sindh and Balochistan.He informed that WWF-Pakistan is a pioneer in organic cotton cultivation and certification, and this was made possible with the generous financial support of Laudes Foundation as well as the support of the Department of Agriculture Extension Balochistan.

Original Link: https://dailytimes.com.pk/941597/speakers-call-for-efforts-to-promote-organic-cotton-production-in-pakistan/

International News

International Research Team Discovers Major Genes Influencing Chickpea's Flowering Time

Scientists from Durham University in the United Kingdom, Harran University in Turkey, and the University of California Davis in the USA, have discovered that flowering time in chickpeas and its wild relatives is influenced by one to three major genes.

The research team created 10 genetically diverse chickpea families from wild samples collected from different locations across southern Turkey. They then cultivated the chickpea hybrids in the field at Harran University and measured several performance-related traits. They also analyzed multiple genetic markers of the chickpea genome focusing on flowering time variation, as early flowering varieties can produce seeds before suffering late summer drought and high temperature in Turkey.

The findings of this pioneering study open up the door for further exploration of the genetic variation for the flowering time available in wild chickpea populations. It also enables the development of genetic markers to make future chickpea breeding efforts faster and more precise. Their research has provided new insights into improving chickpea breeding and has already generated locally adapted varieties in Turkey and Syria.

For more details, read the article on the Durham University website.

B2B Agricultural Cooperation: Chinese Company Signs MoU with Pak Firm

ISLAMABAD: Pakistan's Asia Pak Investment -- a company owned by son of the former ISPR DG Lt-Gen (retd) Asim Saleem Bajwa -- inked a Memorandum of Understanding (MoU) with China's Optima Integration Group on Monday to strengthen B2B agricultural cooperation between the two nations.

The project between the signing parties will comprise setting up an end-to-end supply chain for seafood export (79 species of fish are approved by the General Administration of Customs of the People's Republic of China (GACC) for export from Pakistan to China) to be produced in Pakistan and transported to China for consumption there.

Original Link: https://www.thenews.com.pk/print/960287-b2b-agricultural-cooperation-chinese-company-signs-mou-with-pak-firm

Banana Tissue Culture Production Expanded in the Philippines

Consequently, these improve the revenue and profitability of tissue culture." One of the problems people encounter with white LEDs is that plant tissue culture becomes thin and springy, resulting in slower growth and a lower survival rate. House of Musa now specializes in all types of banana tissue culture, ranging from the Cavendish and local varieties such as Lakatan and Cardava. For many tissue culture labs, the key is to get a consistently high-quality banana plant that develops and grows well.

High-quality tissue culture is more likely to develop into a healthy and strong plant that grows well at the plantation," says Vine. "Until recently, tissue culture laboratories wanted to reduce maintenance and energy, so they chose LEDs that could retrofit their existing labs," said CY Fun, General Manager at PTP Singapore. The use of fluorescent lighting until recently was widespread, but it comes with various problems such as heat generation and frequent maintenance, which can affect the consistency of a tissue culture lab. First at a prestigious banana company in Davao Region and now at her own tissue culture laboratory. While we can expand the lab space, I primarily look at high-quality tissue culture and make the multiplication and rooting stages more efficient.

Original Link: https://www.hortidaily.com/article/9429427/banana-tissue-culture-production-expanded-in-the-philippines/

Agri-Biotech News

China Approves Drought Tolerant HB4® Soybeans

Bioceres Crop Solutions Corp. announced on April 29, 2022, that China's Ministry of Agriculture has given its approval for the import and use as a raw material of soybeans produced using Bioceres' proprietary drought tolerance technology, HB4®. Beijing Da Bei Nong Science and Technology Group Co. Ltd., Bioceres' partner in China has confirmed the approval.

Argentina approved HB4® soybeans for growth and consumption in 2015; with the unrestricted commercialization of HB4® soybean seeds in Argentina subject to Chinese import approval. HB4® soybeans are now approved for unrestricted growth and commercialization in the United States, Canada, Brazil, Argentina, and Paraguay, representing roughly 85 percent of the global soybean trade.

For more details, read the news release from Bioceres.

China to Approve More GM Maize Varieties - Agri Ministry

The Chinese agriculture ministry announced plans to allow more genetically modified maize varieties developed by local companies.

According to ISAAA, China was the seventh-largest producer of biotech crops globally in 2019. It is also one of the six countries that initially adopted biotech crops in 1996. In 2019, approximately 3.2 million hectares were planted with biotech cotton and papaya in China. Early this year, Chinese agriculture ministry officials reported remarkable results in the pilot testing of GM soybeans and maize, which mark a historical milestone in the industrialization of these GM foods in the country.

The notice on the website of the Ministry of Agriculture and Rural Affairs indicates that the GM maize varieties that will be released soon include those developed by China National Seed Group, a unit of Syngenta Group, and a herbicide tolerant variety produced by Hangzhou Ruifeng Bio-Tech Co Ltd.

Read more from Successful Farming and ISAAA.

Farmers Advised to Benefit from Highly Profitable Garlic Variety

PESHAWAR – Growers of a new variety of garlic, NARC G1, have advised farming community of the country to take advantage of this garlic variety which has the potential of not only saving billions by reducing imports but also can help generate enormous profits for farmers due to high yield per acre.

“The new variety of garlic is not only profitable for growers due to increased yield per acre, but its nutritive value is also more than the Chinese and the ordinary garlic being cultivated in the country,” said Dr.

The per acre yield of locally produced garlic was around 70 to 80 maunds while the new variety had been producing around 200 to 250 maunds per acre, much more than the expectations of farmers, Isamel disclosed.

The G1 garlic needs official patronage for its production and for benefiting the farming community by enabling them to grow this highly profitable variety, Ismael remarked.

Jehan Bakht, while inspecting a farm of the G1 garlic within the premises of varsity over an area of one acre, said this new variety was very much beneficial for improving earnings of farmers besides earning of foreign exchange.

Original Link: https://nation.com.pk/2022/05/26/farmers-advised-to-benefit-from-highly-profitable-garlic-variety/

Pakistan: Prime Minister Sharif Directs Punjab Government to Enhance Wheat Procurement

ISLAMABAD: Prime Minister Shehbaz Sharif directed Punjab government to enhance its target for wheat procurement and instructed Food Security Division to timely import commodity, if need arises to meet any shortfall.

Prime Minister was also briefed about public relief measures by sitting government, which includes provision of subsidised wheat to flour mills, availability of 10 kilogrammes of wheat flour bag at Rs 400, supply of flour through Utility Stores in Balochistan and two metric tonnes of wheat to Khyber Pakhtunkhwa. It was told that reduction in wheat cultivation area, shortage of water, and fertilizer crisis, were the main reason behind low production.

Regarding wheat procurement target at government level, meeting was apprised that Punjab has achieved 91.66 percent, Sindh 49.68 percent and Balochistan 15.29 percent, while PASSCO has hundred percent of its objective. It was told that target set for current year was 28.89 metric tonnes of wheat, but production is likely to remain 26.173 metric tonnes.

Original Link: https://www.aninews.in/news/world/asia/pakistan-pm-sharif-directs-punjab-govt-to-enhance-wheat-procurement20220507195443/

Health-Biotech News

Gene Discovery Set to Improve Wheat Yields and Increase Protein Content by Up to 25%

An international team of researchers from Australia's University of Adelaide and the UK's John Innes Centre has identified a gene that improves wheat yield, which can also lead to increasing the crop's protein content by up to 25 percent.

According to Dr. Scott Boden from the University of Adelaide's School of Agriculture, Food and Wine, little is known about the mechanism behind the drivers of yields and protein content in wheat production. The discovery of the gene that controls the two factors has the potential to generate new wheat varieties with higher grain quality. “The genetic variation we identified provides a 15-25 percent increase in protein content for plants grown in the field. These varieties also produce extra spikelets, known as paired spikelets,” said Dr. Boden.

The researchers expect that the new wheat varieties will be available to breeders in 2–3 years' time, which could then translate to benefits for farmers in 7–10 years' time.

For more details, read the team's findings in Science Advances, or the news article in The University of Adelaide Newsroom.

Journalist for Boosting Agriculture Sector to Ensure Food Security

At the time, the country is facing the issue of availability of Urea but the incumbent government reiterated the commitment that it would not tolerate unjustified price increase of urea, Salman said, adding: "There is a need to ensure a proper checking and tracking system to overcome shortages of key soil nutrients in the country." He further said the provincial governments need to collaborate with the federal government to overcome the issues related to the agriculture sector and boost the industry.

Original Link: https://www.brecorder.com/news/40172740

Other than Crop Biotech News

NASA Climate Scientist Cynthia Rosenzweig is the 2022 World Food Prize Laureate

The World Food Prize Foundation has named former farmer and NASA climate scientist Dr. Cynthia Rosenzweig the 2022 World Food Prize Laureate for her pioneering work in modeling the impact of climate change on food production worldwide.

The award announcement was made during a ceremony hosted by the U.S. Department of State on May 5, 2022. Barbara Stinson, President of the World Food Prize Foundation, made the announcement of the 2022 Laureate, who will officially receive the World Food Prize in a renowned ceremony in October. U.S. Secretary of Agriculture Thomas J. Vilsack, Under Secretary of State for Economic Growth, Energy, and the Environment Jose W. Fernandez, Assistant Secretary for Economic and Business Affairs Ramin Toloui, and Special Envoy for Global Food Security Dr. Cary Fowler gave remarks during the event.

The World Food Prize Foundation honors Dr. Rosenzweig's achievements as the founder of the Agricultural Model Intercomparison and Improvement Project (AgMIP), a globally integrated transdisciplinary network of climate and food system modelers. Her leadership of AgMIP has directly helped decision-makers in more than 90 countries enhance their resilience to climate change.

For more details, read the press release from the World Food Prize Foundation.

UK to Bring Forward a Genetic Technology Bill for Sustainable Agriculture

The National Institute of Agricultural Botany (NIAB) welcomed the announcement that the UK Government will bring forward new primary legislation, The Genetic Technology (Precision Breeding) Bill. This Bill will ease the application of particular precision breeding techniques that will not need to go through the restrictive rules for genetically modified crops since the resulting plants could have been a product of natural selection or conventional breeding.

According to NIAB chief executive Professor Mario Caccamo, the announcement indicates progress towards a more science-based and proportionate regulation of precision breeding, which levels up the UK plant science and the development of more sustainable farming systems.

"The Genetic Technology (Precision Breeding) Bill announced today will provide a more straightforward route to market for seeds and crops developed using advanced breeding technologies such as gene editing. It sends a clear signal that Britain is adopting a more pro-innovation approach outside the EU, bringing our rules into line with other countries such as Japan, Canada, Argentina, Brazil, and Australia, and opening up much greater potential for inward investment and international research collaboration given the UK's strengths in genetic science…Innovation in plant breeding will be the single most important factor in helping global food supplies keep pace with a growing world population, in the face of climate change and pressure on finite natural resources of land, water, energy and biodiversity," Prof. Caccamo explained.

Read the press release from NIAB.

Government Urged To Withdraw 17pc Sales Tax on Agriculture Seeds

ISLAMABAD – Pakistan Hi-Tech Hybrid Seed Association on Sunday demanded of the government immediate withdrawal of 17 percent Sales Tax on all kinds of agricultural seeds to avoid shifting of its burden on poor people besides fully protecting planned Chinese investment on "China Hybrid Agriculture Model and Transfer of Technology" under phase-II of CPEC. He said Pakistan is in direct competition with the top agricultural produce exporting countries of the world and levy of 17 percent ST on agriculture seeds will result in a sharp decrease in Pakistan agricultural yields and exports.

Presiding over Executive Committee meeting of the association here Sunday, Chairman Shahzad Ali Malik said it will definitively jeopardise envisioned investment avenues in agriculture sector and act as disincentive for Chinese investors in relation to their planned investments in CPEC having major focus on "China Hybrid Agriculture Model and Transfer of Technology". He said this uncalled for ST will discourage the promotion of best quality hi tech hybrid seeds in Pakistan resulting loss of bumper agricultural production. In view of above genuine legitimate grievances, association on behalf of the entire agricultural sector make an impassioned appeal to Prime Minister (PM) Shehbaz Sharif to withdraw ST in question in the larger national interests of overall economy of the country, he concluded.

Original Link: https://nation.com.pk/2022/05/09/govt-urged-to-withdraw-17pc-st-on-agriculture-seeds/

Pakistan Exceeds Expectations as Growth Rate Nears 6 Percent

The large-scale manufacturing industry is driven primarily by QIM data (from July 2021 to March 2022) which shows an increase of 10.48pc. Major contributors to this growth are food (11.67pc), tobacco (16.7pc), textile (3.19pc), wearing apparel (33.95pc), wood products (157.5pc), chemicals (7.79pc), iron & steel products (16.55pc), automobiles (54.10pc), furniture (301.83pc) and other manufacturing (37.83pc). The electricity, gas and water industry shows a growth of 7.86pc, mainly due to an increase in subsidies in 2021-22.

An upward trend in the growth was also seen in the revised figures for the year 2020-21, when it was estimated at 5.74pc, which was provisionally projected at 5.57pc. The size of the economy rose to $380 billion in 2021-22 from the revised figure of $346.76bn the previous year. The revised GDP growth rate for the year 2020-21 is 5.74pc, which was provisionally estimated at 5.57pc. The crops sub-sector has improved from 5.92pc to 5.96pc. Other crops have improved from provisional growth of 8.08pc to 8.27pc in revised estimates. Value added in the construction industry, mainly driven by construction-related expenditures by industries, has registered a modest growth of 3.14pc in 2021-22 against 2.48pc the previous year, mainly due to an increase in general government spending.

The growth in important crops during this year is 7.24pc against last year's 5.83pc. The growth in production of important crops — cotton, rice, sugarcane and maize — are estimated at 17.9pc, 10.7pc, 9.4pc and 19pc, respectively. The overall industrial sector shows an increase of 7.19pc in 2021-22, while it recorded a growth of 7.81pc in 2020-21. In the agriculture sector, a robust growth was seen in four major crops — cotton, rice, sugarcane and maize — while a dip was noted in wheat production.

Original Link: https://www.dawn.com/news/1690400

Vice Chancellor Sindh Agriculture University Expresses Concern over Spending Of Rs. 20 Million on Milk Import

"Around 80 percent of milk is produced by rural areas where the facilities of cold storage at large scale are not available." The VC called for setting up maximum cold storage facilities in rural areas of the country so that the maximum amount of milk produced there could be preserved.

The PhD scholar Deepesh Kumar Bhuptani said that unhealthy food being given to animals releases Aflatoxin through animal milk which causes harmful effects of aflatoxin among those who consume such milk. He informed that while conducting his PhD research, he found aflatoxin in milk samples collected from Karachi, Thatta, Hyderabad, Mirpurkhas, Umerkot, Shaheed Benazirabad, Naushehro Feroze, Sukkur and Larkana.

Fateh Marri expressed his concern that more than 20 billion rupees were being spent on import of milk products despite the fact that Pakistan was one of the four largest milk producing countries in the world. Fateh Marri said the scarcity of milk in the country could be overcome by preserving the domestically produced milk with the help of modern technology.

Original Link: https://www.urdupoint.com/en/pakistan/vice-chancellor-sindh-agriculture-university-1516573.html

Seed Banks Catalog Brazil's Food Past to Safeguard its Future

"We like to joke that the Krahô shot an arrow at Embrapa's seed bank because they raised our awareness in the process," says Embrapa researcher Terezinha Dias, who has coordinated actions on ethnoscience, conservation of genetic resources and promotion of food security with the Krahô people for 20 years.

"Companies would come already lobbying governments in each country so that local seed laws would ban the use of traditional seeds." The result was the impoverishment of agrobiodiversity, with the extinction of many plant varieties and loss of cultural knowledge about species management, a process known as genetic erosion.

"Cashew nut behaves like an orthodox seed, so we are sending the first seeds to Svalbard; no country has sent it there yet," Barbieri says.

"We keep the seeds at low temperatures, in tissue cultures [slow-growth test tubes], or [grow them] as plants in the field." Beans, rice, corn and pumpkins produce seeds known as orthodox, which can be stored in dry and cold conditions, sometimes even for centuries, and still be able to germinate afterward.

In 2020, the Krahô Traditional Seed Fair was one of 10 initiatives awarded a 50,000 reais ($10,200) prize by BNDES, the Brazilian Development Bank, for good practices in traditional agricultural systems.

Original Link: https://www.youtube.com/watch?v=ncwUdOiqibs&t=309s

Plant Breeding Innovations

Potato with Amylose-free Starch Developed thru CRISPR-Cas9 Editing

Scientists at Texas A&M University explored the ability of the CRISPR-Cas9 system to knock out four copies of a gene in the tetraploid potato. The results of this two-part study are published in the International Journal of Molecular Sciences and Plant Cell, Tissue and Organ Culture.

Potato is an important crop and ranks fourth worldwide among all the food crops, only behind maize, rice, and wheat in terms of global production tonnage. In addition to its use as food, potato starch has many applications in processed food, paper, adhesive, and textile industries. To explore the ability of the CRISPR-Cas9 system to knock out four copies of a gene in the tetraploid potato, the team utilized the Agrobacterium method to deliver the CRISPR reagents into potato. In the first study, a potato line containing four copies of the gfp (a jellyfish gene that allows a fluorescence-based visualization of its activity) was targeted. Loss of the characteristic green fluorescence and sequencing of the gfp gene following CRISPR treatment indicated that it was possible to disrupt all four copies of the gfp gene, thus confirming that it should be possible to mutate all four alleles of a native gene in the tetraploid potato.

Lessons learned from the first study were then applied to disrupt the gbssI gene in the tetraploid potato (variety Texas Yukon Gold) with the aim of eliminating amylose from the starch. Tuber starch from one such knockout event (T2-7) was completely devoid of amylose. All four gbssI alleles in this event were mutated, however, it showed normal growth and yield characteristics. This edited event, with starch consisting only of amylopectin, should find industrial applications in traditional sectors such as paper, adhesive, textile, and bioplastics industries. Tuber starch from this event, because of its freeze–thaw stability, without the need for chemical modifications, will be useful for producing frozen foods. Potatoes with amylopectin as the exclusive form of starch should also yield more ethanol for industrial use or to create alcoholic beverages.

Read more findings in the International Journal of Molecular Sciences and Plant Cell, Tissue and Organ Culture.

India Eases Process for Release of Genome Edited Plants Without Foreign DNA

After extensive deliberations of genetic engineering experts in India, the government released the final guidelines for the safety assessment of genome-edited plants on May 17, 2022. According to the office memorandum released by the Department of Biotechnology, the guidelines serve as a road map for the development and sustainable application of genome editing, including the regulatory pathways to be taken for the release of genome-edited plants.

The guidelines state that genome-edited plants that do not contain foreign DNA are exempted from Rules 1989, which are implemented for genetically engineered plants by the Genetic Engineering Appraisal Committee (GEAC). The Institutional Biosafety Committee will monitor the genome-edited plants under containment until they are free from foreign DNA. The new guidelines are based on the recommendations of the Department of Biotechnology, Ministry of Science and Technology and the Department of Agriculture Research and Education, Ministry of Agriculture and Farmers Welfare.

Read the guidelines posted on the website of the Department of Biotechnology.

Health Canada Issues Gene Editing Guidelines, Encourages Transparency

Health Canada released the much-awaited clarification on the regulation of plant breeding innovations, including gene editing. The new policy is based on public consultations held in 2021.

On May 18, 2022, Health Canada published the new guidance indicating that gene-edited crops that meet the categories set for food that is not considered novel food can be treated like conventional crops, and would not be required to go through the pre-market safety evaluation applied for genetically engineered crops.

Health Canada also introduced a voluntary transparency initiative (TI) process for gene-edited plants developed for food use and are not novel foods. The process encourages developers to provide concise information about the product, which will be published online by Health Canada for public access.

Read the news guidelines and the TI process released by Health Canada.