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PAKISTAN BIOTECHNOLOGY INFORMATION CENTER (PABIC)



INSIDE THIS ISSUE

- Messages of the Patron
PABIC and Director ICCBS
- Agri-Biotech News
- Other than Crop Biotech
News
- National News

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PABIC



I S A A A

MESSAGE OF THE PATRON PABIC



One of the most important challenges of modern time is to provide nutritious food, and quality health care facilities to the rapidly growing population of the world. These are also among the SDGs which every nation committed to achieve by 2030 (SDG 2 Zero Hunger, and SDG 3 Good Health and Well-Being). Unfortunately, most of the OIC member states have not made significant progress in achieving these goals. Many countries are not only the net importers of food commodities and pharmaceutical products, but also lack capacities and policies to make progress towards food and health security. Therefore, there is a need to develop coherent policies to develop indigenous technological development, and foster collaboration with other nations for shared prosperity. There is a serious lack of appreciation of scientific outcomes at the public and industrial levels. Coordination and exchange of information among the researchers and end users of science (public, and industries) is less than adequate. There is a lack of communication about the fruitful outcomes of modern science for common good. Therefore, there is need of specifically trained science communicators to facilitate scientists in communicating scientific information to those outside their immediate fields.

The **Pakistan Biotechnology Information Center (PABIC)**, under the patronage of the OIC-COMSTECH and the ICCBS, is actively working to promote modern biotechnological applications in Pakistan and in the OIC nations since 2007. The main emphasis of PABIC is on the capacity building of various stakeholders. This includes training of media personnel and journalists on objective reporting of the biotechnology and related issues. PABIC also contribute towards designing of educational approaches to train interdisciplinary scientists and young scholars in emerging area of health, agriculture, bioinformatics and environmental biotechnology.

I hope the newsletter “ARISEN” in hand will not only highlight the new and exciting developments of biotechnological approaches in various fields of sciences and technology, but also contribute towards encouraging young scholars to adopt the emerging sciences as their research passions.

Prof. Dr. M. Iqbal Choudhary, *Mustafa (PBUH) Prize Laureate, H.I., S.I., T.I.*

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Coordinator General OIC-COMSTECH

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MESSAGE OF THE DIRECTOR, ICCBS



Modern biotechnology is among the most exciting fields of emerging sciences, offering countless opportunities to address enduring challenges of food security and healthcare. The integration of biotechnology with other sciences is providing solutions to most pressing problems of modern times, food, health, and environment.

The **Pakistan Biotechnology Information Center (PABIC)** is a premier national organization dedicated to the advancement of biotechnology in Pakistan. Established with the vision of promoting scientific research in the field of biotechnology, PABIC plays a key role in facilitating the exchange of knowledge and resources related to biotechnological advancements. It gives me great pleasure to welcome you to the latest edition of PABIC Newsletter. I hope this newsletter will enhance the knowledge and awareness of contemporary techniques across various branches of biological sciences, especially among emerging researchers.

Prof. Dr. Muhammad Raza Shah, S.I., T.I.

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AGRI-BIOTECH NEWS

Scientists Identify Gene to Improve Root Systems in Cereal Crops

A collaborative research from University of Queensland PhD candidate Richard Dixon and scientists at the Australian National University revealed a plant signaling gene that could help develop cereal crops with deeper and more efficient root systems. The findings were published in the Journal of Experimental Botany.

“Our goal is to use biotechnology to create a ‘steep, deep and cheap’ plant with a root system that can access water and nutrients in challenging conditions, without significant yield trade-offs,” Mr Dixon said. In the study, the team engineered Arabidopsis plants by introducing versions of the gene from barley, rice, and maize. He added that tailoring root system architecture to specific cropping conditions could improve resource capture efficiency, potentially lowering fertilizer costs, reducing environmental run-off, and enhancing crop performance under water-limited conditions.

While the initial findings are promising, the study also highlighted key challenges. In barley, knocking out CEPR1 improved root structure but resulted in yield penalties. The researchers now aim to refine the approach to develop root systems that can access deeper water and nutrients without compromising grain production. They are also exploring the combination of CEPR1 with other gene targets and the use of advanced root-scanning facilities in Germany to evaluate plant performance under drought and nutrient-stress conditions.

ISAAA Link: [Scientists Identify Gene to Improve Root Systems in Cereal Crops- Crop Biotech Update \(April 1, 2026\) | Crop Biotech Update - ISAAA.org](#)

Original Link: [Unlocking designed roots for future cereal crops - Queensland Alliance for Agriculture and Food Innovation - University of Queensland](#)

Scientists Develop Ultra-Low Asparagine Wheat Using Precision Breeding to Improve Food Safety

Scientists at Rothamsted Research have developed a new gene-edited wheat with dramatically reduced asparagine levels, which in turn leads to lower acrylamide formation in food products. By using precision CRISPR technology to “knock out” specific genes responsible for producing the amino acid asparagine, the team achieved a reduction in asparagine levels of up to 50% compared to conventional varieties, without a significant loss in crop yield.

The breakthrough addresses a long-standing challenge in the food industry, the natural presence of free asparagine in wheat, which converts into toxic acrylamide during high-temperature cooking processes like baking, frying, or toasting. While previous attempts to lower asparagine through traditional breeding often resulted in smaller harvests or weaker plants, this precision gene editing approach specifically targeted the asparagine synthetase-2 (TaASN2) gene, responsible for asparagine production.

The study, conducted in collaboration with partners, including Karlsruhe Institute of Technology, Leibniz Institute for Food Systems Biology, Technical University of Munich, University of Reading, and Curtis Analytics Limited, compared CRISPR-edited wheat lines with conventionally mutagenised (TILLING) lines. One edited line also included a partial knockout of the related TaASN1 gene. These targeted edits reduced free asparagine in the grain by 59%, and by up to 93% in the dual-edited line, without any reduction in yield. By contrast, wheat developed using traditional TILLING methods achieved a 50% reduction in free asparagine but suffered a yield penalty of nearly 25%.

Lead researcher Dr. Navneet Kaur, from Rothamsted Research, said, “This work demonstrates the power of CRISPR technology to deliver precise, beneficial changes in crop genetics. With supportive regulatory frameworks, we can unlock significant benefits for agriculture and food systems.” Beyond industrial benefits, the ultra-low asparagine wheat represents a major step forward in public health by reducing dietary exposure to harmful contaminants. As the UK moves forward with the Genetic Technology (Precision Breeding) Act, this research provides a powerful template for how gene editing can be used to solve complex food safety issues and enhance the nutritional profile of global staple crops.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21765>

Original Link: <https://www.rothamsted.ac.uk/news/ultra-low-asparagine-wheat-developed-using-precision-gene-editing>

Seed Banks May Slow Gene Drives for Weed Control

Led by Dr. Isabel Kim and Leqi Tian, researchers from Cornell University found that seed banks could significantly affect the success of gene drives designed to control weeds. In a new study published in *Nature Plants*, the research team modeled how gene drives would behave in plant populations and identified key challenges.

The team found that underground seed banks can reintroduce non-modified plants into the population. This process may slow or even prevent the spread of engineered traits. Using simulations based on plant reproduction and seed survival, the researchers showed that gene drives like CAIN and ClvR could still spread, but would require more time and possibly larger initial releases.

Despite these challenges, seed banks may also act as a natural safety mechanism. The study suggests that dormant seeds could limit unintended spread, helping gene drives fade out over time. The findings provide a foundation for designing safer and more effective gene drives in plants.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21769>

Original Link: <https://news.cornell.edu/stories/2026/04/seed-banks-may-complicate-gene-drives-aimed-controlling-weeds>

Japan and Brazil Grant Green Light to Non-browning Banana

Tropic's non-browning banana variety has received regulatory approvals in Japan and Brazil. These approvals enable the import, sale, and consumption in both countries. Brazil, one of the world's largest banana-producing and banana-consuming countries, also granted cultivation approval.

“These approvals represent a major step forward in bringing innovative, waste-reducing produce to consumers worldwide...Japan and Brazil each play critical roles in the global fruit market, and these decisions reflect growing international confidence in new agricultural technologies designed for modern supply chains,” said Gilad Gershon, CEO of UK-based agri-biotech company Tropic. Tropic's non-browning banana was hailed as one of Time magazine's Best Inventions 2025. This banana variety was developed using gene-editing techniques to switch off the gene encoding polyphenol oxidase, the enzyme responsible for browning. Thus, the banana's flesh has the same great taste, texture, and aroma as a standard Cavendish banana, but stays firm, yellow, and fresh for a longer time than conventional bananas even after peeling and slicing.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21775>

Original Link: <https://tropic.bio/04-2026-japan-brazil-approvals/>

International Consortium Launches Global Initiative to Map Wheat at Single-Cell Resolution

An international team led by Murdoch University has established a strategic framework to map wheat biology at single-cell and subcellular resolution for the first time. Published in *Nature Genetics*, this global initiative by the Wheat Spatial Omics Consortium (WSOC) aims to create a comprehensive cellular atlas of one of the world's most essential staple crops. By understanding the genetic inner workings of wheat at such a high definition, scientists hope to develop more resilient and high-yielding varieties to combat the growing threats of climate change and food insecurity.

The consortium, which includes more than 80 researchers from over 30 institutions across nine countries, is utilizing advanced spatial omics technologies to achieve this milestone. Unlike traditional methods that average genetic data across entire tissues, this new approach allows scientists to observe gene activity, proteins, and metabolites within individual cells while preserving their original location in the plant's architecture. This high-definition mapping, supported by artificial intelligence and deep learning, provides a vital blueprint for how wheat develops and adapts to environmental stressors like heat and drought at a fundamental biological level.

The project is critical as global wheat production must increase by an estimated 60% by 2050 to feed a projected population of 9.8 billion. Professor Rajeev Varshney, Director of Murdoch University's Centre for Crop and Food Innovation, noted that these cellular insights will allow for much more targeted and precise breeding strategies. By identifying specific cells that express tolerance-conferring genes, researchers can accelerate the discovery of elite genetic variants,

ensuring that global agriculture remains productive despite increasingly harsh environmental conditions.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21778>

Original Link: <https://www.murdoch.edu.au/news/articles/international-team-takes-first-steps-in-mapping-wheat-biology-at-single-cell-resolution>

Breakthrough Gene Editing Trims Wheat Chromosomes for Faster Breeding

In a world-first achievement, researchers at the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) Gatersleben have successfully used CRISPR-Cas9 technology to significantly shrink or entirely remove specific chromosomes in wheat. By targeting satellite DNA, the team has demonstrated that even the massive, complex genome of wheat can be precision-engineered at a structural level. This breakthrough, published in *Plant Communications*, provides scientists with a powerful new toolkit to manipulate crop genetics with unprecedented accuracy.

The research team, led by Dr. Jianyong Chen and Prof. Dr. Andreas Houben, likened their method to cutting a rope in multiple places simultaneously; when enough breaks occur at these repetitive sites, the chromosome becomes unstable and eventually snaps or is lost entirely. While such chromosomal changes were previously only possible through rare, chance occurrences, this targeted approach allows for the creation of isochromosomes and other new genetic variants. By utilizing a virus-based delivery system, the scientists bypassed the slow traditional transformation processes, enabling rapid and efficient modifications that were once thought impossible in crops with large genomes.

This innovation opens transformative pathways for global agriculture, particularly in the effort to transfer valuable traits from wild relatives into cultivated wheat. By trimming away unnecessary genetic material or inducing specific chromosomal rearrangements, breeders can more effectively introduce resistance to pests, diseases, and climate-driven stresses like drought or heat. Ultimately, the ability to engineer plant genomes at the chromosomal level promises to drastically accelerate the development of hardier, high-yielding wheat varieties, securing food supplies in an increasingly volatile global environment.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21789>

Original Link: <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.ipk-gatersleben.de/fileadmin/content->

Researchers Reveal How Plants Hit the Reset Button after Stress

When plants face harsh conditions, such as extreme cold or high salt levels, they do not just stop growing by accident; their bodies actively manage the crisis at the microscopic level. Once the

"stress" ends, plants try to bounce back and return to normal growth, but the specific biological switches that manage this recovery process have long been a mystery to scientists.

To solve this, University of British Columbia researchers studied how different plants, such as grasses and clover-like weeds, tolerate salt, cold, and heat. They discovered that during cold or salty conditions, the plants use a "pause and play" strategy. They park their cell-building process in a specific waiting phase, held in place by two key proteins that act as biological brakes. Once the environment improves, the plants release these brakes, allowing growth to resume right where it left off. This suggests that plants have a built-in, universal system for hitting the pause button to survive tough times without permanently breaking their growth cycle.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21786>

Original Link: <https://nph.onlinelibrary.wiley.com/doi/10.1111/nph.71041>

Gene Discovery to Help Tomato Seeds Germinate Under High-Temperature Conditions

Researchers at the University of Tsukuba have identified a gene, *SlIAA9*, that plays a critical role in allowing tomato seeds to germinate under extreme heat. While high temperatures typically trigger dormancy or cause physical abnormalities in standard tomato seedlings, plants lacking this gene showed a remarkable ability to maintain high germination rates and healthy growth.

The study revealed that the *SlIAA9* gene acts as a repressor in the plant's hormonal signaling pathway. By removing this gene, the researchers found that the seeds could better manage heat stress by producing higher levels of antioxidant enzymes and heat shock proteins. These protective biological mechanisms help neutralize cellular damage and ensure the plant develops normally despite the harsh environment.

This discovery provides a vital genetic blueprint for developing climate-resilient crops. As global temperatures continue to rise, the ability to engineer tomato varieties that can withstand heat during their most vulnerable growth stages could be essential for maintaining food security and supporting the agricultural industry in warming regions.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21790>

Original Link: <https://www.tsukuba.ac.jp/en/research-news/20260325140000.html>

International Research Team Releases Watermelon Super-Pangenome

An international team of researchers led by Dr. Zhangjun Fei of the Boyce Thompson Institute (BTI) has developed a super-pangenome for watermelons. This comprehensive genetic map integrates 138 genomes from all seven extant species in the genus. This super-pangenome captures nearly one million structural variants across both cultivated varieties and their wild relatives. This massive dataset allows scientists to trace millions of years of evolution and identify high-value traits that were lost during centuries of domestic breeding.

The study yielded significant discoveries, including the identification of a specific genetic variant responsible for fruit flesh color and intensity. By analyzing the structural variations that distinguish wild species from grocery store cultivars, the team was able to pinpoint genes linked to sweetness and nutritional value that were previously invisible to standard sequencing methods. This depth of detail provides a new blueprint for understanding how modern watermelons became sweet and colorful, but also why they became more susceptible to pests and environmental stress.

This genetic resource is expected to revolutionize precision breeding, enabling the development of climate-resilient crops. By reintroducing hardy traits from wild ancestors, such as natural disease resistance, into modern varieties without sacrificing the taste or texture consumers love, breeders can create more sustainable agricultural systems. The BTI team has already begun building predictive models that use this super-pangenome to forecast how specific genetic markers will influence a plant's health and fruit quality, significantly speeding up the timeline for producing the next generation of super-watermelons.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21815>

Original Link: <https://btiscience.org/super-powered-population-genomics-watermelon-super-pangenome-paves-the-way-for-precision-breeding/>

Plant Biotechnology Associations Urge EU Parliament to Reject NGT Amendments

Four prominent European plant biotechnology associations have issued a joint open letter urging members of the European Parliament's Committee on the Environment, Climate and Food Safety (ENVI) to swiftly pass a pending compromise regulation on New Genomic Techniques (NGTs). The letter, dated May 15, 2026, was signed by the French Association of Plant Biotechnologies (AFBV), Forum Grüne Vernunft (FGV), the Society for Plant Biotechnology (GfPB), and the Genomics and Genetic Engineering Research Circle (WGG). The coalition argues that a "green light" is desperately needed to counter accelerating global competition. In the letter, the coalition argues that a "green light" is desperately needed to counter accelerating global competition, noting that more than 50% of peer-reviewed NGT research currently originates from China, compared to just 15% from the European Union.

The push is a direct response to a series of amendments tabled by several Members of the European Parliament (MEPs) on May 4, 2026. These amendments seek to alter a hard-fought trilogue compromise proposal, which had previously garnered formal approval from a qualified majority of EU Member States on April 21, 2026. Critics of the current draft argue that it fails to adequately protect small and medium enterprises, farmers, and consumers, citing concerns over transparency and intellectual property safeguards. However, the biotech associations contend that adopting these amendments would trigger multi-year regulatory delays, severely crippling the EU agrifood sector's competitiveness amidst escalating climate challenges.

Dismissing the lawmakers' concerns as redundant, the associations detailed that existing frameworks and European Patent Office rules already offer robust protections against the patenting of natural traits and safeguard farmers from accidental patent liability. They further warned that

additional transparency demands on NGT-1 products, such as full, downstream food supply chain tracing, are scientifically unworkable and legally unenforceable, given that NGT-1 mutations are biologically equivalent to conventional breeding. Urging parliamentarians to reject the amendments, the group concluded that the agreed-upon compromise remains the most legally secure path forward for European agricultural innovation.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21829>

Original Link: <https://www.biotechnologies-vegetales.com/wp-content/uploads/2026/05/Open-Letter-to-the-Envi-Committee-of-the-EP-20260515.pdf>

Humboldt University Researchers Uncover Dynamic Genetic Secrets Behind Wheat Yields

Researchers at the Humboldt University of Berlin (HU) have uncovered the complex biological mechanisms that govern wheat yields, offering crucial insights for global food security amid climate change. Published in *Nature Communications*, the study reveals that high wheat yields do not rely on single, isolated genetic traits. Instead, they result from a highly flexible network of interactions among plant genetics, environmental factors, and agricultural management, allowing wheat to adapt its physiological strategies to changing conditions.

Led by Dr. Tsu-Wei Chen, a professor of Intensive Plant Food Systems at HU, the research team analyzed extensive historical data on wheat breeding. They focused on source-sink dynamics, the intricate balance between a plant's carbohydrate production via photosynthesis (the source) and how those nutrients are stored in the grains (the sink). The study demonstrates that long-term selective breeding from 1960 to 2010 inadvertently improved the crop's sensitivity and adaptability to elevated temperatures, particularly during early developmental stages, helping the plants better withstand climate fluctuations.

These findings could significantly impact the future of global agriculture by shifting how scientists approach crop resilience. By better understanding the dynamic interplay between photosynthesis and grain development, future breeding programs can be tailored to secure stable, high-yield harvests even under severe environmental stress, such as droughts and heatwaves. The study emphasizes that an integrated approach combining genetics, plant physiology, and agronomy will be essential to safeguarding the world's most vital food supplies.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21823>

Original Link: <https://www.hu-berlin.de/en/news/detail/study-researchers-at-humboldt-university-uncover-the-mechanisms-behind-wheat-yield>

Research Shows Drought-Stressed Canola, Tomatoes, and Rice Block Iron Uptake

A study by scientists at the University of Calgary (UCalgary) has revealed that major agricultural crops, including canola, tomatoes, and rice, actively shut down their ability to absorb iron during

drought. Published in the journal *Cell*, the research shows that drought stress triggers a fundamental genetic wiring change in plant roots. Instead of sending out a "cry for help" to soil microbes, drought-stressed plants simultaneously dial down both their immune systems and their inner iron-uptake machinery.

Lead author Dr. Connor Fitzpatrick, an assistant professor in UCalgary's Faculty of Science, explained that this biological shift alters how plants manage nutrients and interact with their environment. While the suppression of the plant's immune system allows a specific group of soil bacteria called **Streptomyces** to thrive, it does not guarantee a healthier plant. By testing their hypotheses on a wide variety of species, the research team proved that this iron-blocking mechanism is a widespread defense or stress response shared across vastly different types of crops. The study's findings have troubling implications for global food security and human nutrition, particularly as climate change increases the frequency and severity of droughts worldwide. Because billions of people rely on crops like cereals and legumes for their dietary iron, water scarcity may not only lower crop yields but also diminish the actual nutritional quality of the food produced. Looking ahead, researchers hope these insights will pave the way for new agricultural innovations, such as specialized probiotic soil treatments or precision crop breeding designed to sustain iron uptake during dry spells.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21842>

Original Link: <https://www.ucalgary.ca/news/research-shows-plants-such-canola-tomatoes-and-rice-reduce-iron-uptake-when-stressed-drought>

Researcher Develop Rapid Transformation Method to Improve Finger Millet

Finger millet is a highly nutritious and climate-resilient grain grown mostly in dry areas of India and East Africa. Even though it handles harsh weather exceptionally well, scientists have struggled to genetically improve the crop using traditional plant breeding and modification techniques. To fix this, researchers from the Indian Agricultural Research Institute developed a new method that uses *Agrobacterium* to safely and rapidly deliver genes or gene-editing tools, such as CRISPR, into cells at the very tip of the plant's shoot. Unlike older methods that require months of growing unstructured clumps of plant tissue before a shoot can sprout, this new approach allows a healthy, modified plant to grow directly from the shoot tip.

The breakthrough cuts the entire process to just 45 to 50 days, successfully modifying roughly 30% of the treated plants. Tests confirmed that the new traits were successfully integrated into the plant's DNA and naturally passed down to the next generation of seeds in accordance with standard inheritance laws. Ultimately, this efficient protocol provides scientists with a powerful and repeatable shortcut to edit the genes of finger millet, paving the way for faster improvements in its yield, pest resistance, and climate resilience.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21868>

Original Link: <https://link.springer.com/article/10.1007/s11248-026-00497-6>

Improving Plants with a Bird-Derived Genetic Tool

Researchers at the California Institute of Technology (Caltech) have developed a highly efficient plant genome engineering system by borrowing a genetic element from the zebra finch. Led by Gözde Demirer, an assistant professor of chemical engineering, the team successfully adapted an animal-native R2 retrotransposon, a mobile genetic element capable of "copying and pasting" genetic code, to precisely write large DNA sequences into plant genomes. The breakthrough addresses a long-standing tradeoff in agricultural biotechnology by allowing scientists to insert complex genetic instructions efficiently and precisely.

For decades, genetic engineering in agriculture relied heavily on random gene insertion via bacteria or precise but limited tools like CRISPR, which struggle to accurately deliver large payloads. The newly developed R2 editor system overcomes these boundaries, integrating genes roughly 30 times more efficiently than standard CRISPR-based methods. In a successful proof-of-concept experiment, lead author and graduate student Kimberley Muchenje used the bird-derived system to seamlessly install a three-enzyme pathway into a naturally green tobacco-family leaf, successfully prompting it to produce a vibrant red pigment without triggering gene silencing.

The breakthrough offers a promising new pathway for fortifying global agriculture against the worsening threats of climate change, drought, and disease. By enabling scientists to install multi-gene metabolic pathways at a single, predictable location in one step, the technology simplifies the process of stacking multiple beneficial traits in a single crop. Moving forward, the Caltech research team plans to refine the system to engineer complex, resilient traits in food crops, opening new doors for global food security and sustainable biomanufacturing.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21871>

Original Link: <https://www.caltech.edu/about/news/improving-plants-with-a-tool-borrowed-from-birds>

Study Reveals Role of Cotton Gene in Growth and Resilience

Researchers from the University of the Punjab, Pakistan, reported that a gene in cotton plants, *GhSPL13*, acts as a master regulator of plant growth and development. Their findings are published in *Plant Science*.

Previous studies have revealed the role of SPL genes in other plants. However, its specific function in cotton plants remains a mystery. Thus, the researchers used CRISPR gene editing to tweak the gene in cotton plants and reveal its function.

The results showed that gene-edited plants became much bushier with more branches, and they developed longer, heavier root systems. Additionally, the cotton plants produced more growth hormones and beneficial compounds, such as antioxidants.

These changes also increased the resilience of cotton plants to dry spells. When facing drought conditions, the gene-edited plants were much better at conserving water, capturing carbon dioxide, and maintaining high chlorophyll levels to photosynthesize efficiently.

The findings of the study provide valuable insights into breeding tougher, higher-yielding cotton crops that can withstand harsh environments.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21883>

Original Link: <https://www.sciencedirect.com/science/article/abs/pii/S0168945226003195>

Gene Editing Boosts Soybean Yield Under Dense Planting

Experts from Heilongjiang Bayi Agricultural University and partners in China used CRISPR to improve soybean seed size and yield under high-density planting. The research team found that editing four closely related calcium-binding receptor-like cytoplasmic kinase genes (*GmCRCK1a-1d*) produces larger seeds and higher yields. The findings suggest that these genes could be valuable targets for developing high-yield soybean varieties.

The researchers generated soybean lines with all four *GmCRCK1* genes simultaneously edited using the CRISPR-Cas9 gene editing technique. The edited plants consistently produced larger and heavier seeds, while plants engineered to overexpress one of the genes developed smaller seeds. Further analyses showed that the edited plants had higher protein content and changes in amino acid composition, indicating that the genes also influence seed quality and development.

Field trials conducted under different planting densities showed that the edited soybean lines maintained larger seed weights and produced 12% to 29% higher plot yields than conventional plants. The researchers concluded that editing the *GmCRCK1* genes could help breeders develop soybean varieties with improved protein content and higher yields, particularly under dense planting systems commonly used in modern agriculture.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21894>

Original Link: <https://onlinelibrary.wiley.com/doi/full/10.1111/pbi.70713>

OTHER THEN CROP BIOTECH NEWS

Novel CRISPR-Based Vaccine Shows Protection against Marek's Disease

Scientists from Henan University of Science and Technology and partners have developed a novel vaccine using CRISPR-Cas9-based gene editing to target hypervirulent Marek's disease virus (MDV), a major cause of economic losses in the poultry industry. The findings of the study, published in *Poultry Science*, highlight the growing challenge of emerging MDV strains that evade protection from existing commercial vaccines.

The research team developed a double-gene deleted vaccine that targets both the oncogene meq and LAT-clustered microRNAs, which are linked to tumor formation and viral persistence. Comprehensive experiments confirmed the gene deletions, genetic stability, and replication, without affecting the expression of essential viral genes. The researchers reported that further animal tests showed no histopathological lesions or neoplastic changes, demonstrating the vaccine's strong safety profile in chickens.

Trials revealed that the novel vaccine achieved a protection index of 88.9% against a hypervirulent MDV strain, surpassing the 70.6% protection offered by the standard CVI988 vaccine. These findings offer a promising strategy for developing highly efficient vaccines against Marek's disease and other herpesviruses.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21762>

Original Link: <https://www.sciencedirect.com/science/article/pii/S0032579126005006>

Study Finds How Visual Cues Drive GMO Polarization

A new study published in the *Journal of Science Communication (JCOM)* reveals that images used in media coverage of genetically modified organisms (GMOs) often deepen existing public polarization rather than changing minds. Researchers found that visual cues—ranging from simple fruit to evocative "frankenfood" imagery—frequently reinforce a person's prior beliefs, making supporters more positive and skeptics more wary.

The study, led by Rachel Bailey of Florida State University, presented nearly 1,000 participants with neutral text about GMOs accompanied by different visuals: no image, a positive image (an apple), or a coactive image (an apple being injected with a syringe). The team measured "potential ambivalence"—the state of holding conflicting positive and negative views—and "felt ambivalence," the actual psychological discomfort experienced when making a choice. Results showed that for supporters, positive imagery reduced potential ambivalence, making them even more likely to purchase GMO products. However, the coactive syringe image—intended to represent the "unnaturalness" often cited by critics—did not significantly sway skeptics toward a more positive view, but rather intensified the negative feelings of those already wary.

These results highlight the biological and emotional power of imagery in shaping food choices, a tactic long used in anti-GMO campaigns to steer consumer behavior. While images remain a potent

tool for persuasion, the study suggests that when it comes to deeply divisive topics like biotechnology, a single visual cue is often not enough to overcome "stuck" attitudes. Instead, these images may inadvertently widen the gap in public perception by validating the viewers' pre-existing biases.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21766>

Original Link: <https://www.eurekalert.org/news-releases/1122380>

Researchers Develop Single-Dose Vaccine against Newcastle Disease and H9N2 Avian Influenza

Researchers from China Agricultural University and the Agricultural College of Yanbian University have developed and examined two recombinant turkey herpesvirus (rHVT) vaccine candidates designed to protect poultry against Newcastle disease virus (NDV) and H9N2 avian influenza. The study explores a potential single-dose vaccine strategy that could simplify current poultry vaccination programs.

The vaccines were engineered using the CRISPR-Cas9 gene editing system to express key proteins from both viruses. In laboratory tests, the modified viruses successfully produced the target proteins and remained stable after multiple cell passages. According to the researchers, this dual-expression approach could help reduce stress in poultry by combining protection against two major diseases in a single-dose vaccine.

In animal trials, rHVT-OHA-OF(H) reduced H9N2 viral shedding at 3 and 5 days post-challenge but did not protect against mortality caused by NDV. In contrast, rHVT-OHA-OF(U) provided 100% protection against NDV-related mortality and significantly reduced viral shedding for both NDV and H9N2 infections. The results suggest strong potential for a combined vaccine, although further optimization is needed before practical use.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21802>

Original Link: <https://www.sciencedirect.com/science/article/abs/pii/S0378113526001793>

Study Shows Mitochondria Can Make New Organelles

Scientists from the University of California, Los Angeles, have discovered that when a certain parasite, *Toxoplasma gondii*, infects a human cell, it hijacks the cell's mitochondria, the structures usually known as the cell's powerhouses. Instead of just producing energy, these mitochondria react by shedding their outer layers to create entirely new compartments called structures positive for outer mitochondrial membrane (SPOTs). These new structures actually help the parasite grow. While it is not yet fully understood how, researchers believe the parasite might be "feeding" off the waste material that these new compartments digest, effectively turning the cell's own machinery against itself to fuel the infection.

“What is so cool and surprising is the ability of a pathogen to completely, not only manipulate the mitochondria, but use the mitochondria to generate an entire new organelle in the cell, with such

precision,” said Shaeri Mukherjee, a cell biologist and immunologist at the University of California, San Francisco.

This discovery is remarkable because it shows that mitochondria play a much more active role in the body's immune defense and cell organization than previously thought. By observing the parasite "pin" itself to the mitochondria and forcing them to build these new structures, scientists are gaining insight into how complex life might have evolved. If modern mitochondria can spawn new internal parts today, it supports the theory that their ancient ancestors did the same billions of years ago, helping to build the intricate internal world of the very first complex cells.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21805>

Original Link: https://www.nature.com/articles/d41586-026-01295-0?utm_source=Live+Audience&utm_campaign=319ca65a36-nature-briefing-daily-20260428&utm_medium=email&utm_term=0_-33f35e09ea-49865388

ISAAA and MABIC Announce 2026 Asian Short Course in Malaysia

Agricultural biotechnology holds immense potential to foster sustainable agriculture, but transforming lab breakthroughs into real-world solutions requires a seamless blend of robust R&D, science-based regulations, and effective communication. To ensure society reaps these benefits while minimizing risks, scientists, regulators, and policymakers must collaborate closely so that scientific advancements and regulatory practices evolve hand in hand. To bridge these fields, the International Service for the Acquisition of Agri-biotech Applications (ISAAA), Inc. and the Malaysian Biotechnology Information Centre (MABIC) announce the *9th Asian Short Course on Agribiotechnology, Biosafety Regulation, and Communication* (ASCA9), taking place from September 1–4, 2026, at Peterson Solutions in Klang, Selangor, Malaysia.

Organized through a strategic collaboration between ISAAA, Inc. and MABIC, ASCA is a premier capacity-building initiative designed to equip Asian biotech players with vital policy and regulatory expertise. This is particularly crucial for developing countries navigating resource constraints. Since its inception, ASCA has built a vibrant regional network—hosting successful programs across Malaysia, the Philippines, Indonesia, and Thailand—and has empowered more than 250 participants to foster a unified, science-based voice that promotes biotech R&D, commercialization, and international trade.

Over four intensive days, ASCA9 will focus on four core learning themes:

- The Frontier of Agricultural Biotechnology
- Navigating Global Regulatory Frameworks
- Genome Editing: Science, Policy, and Commercialization
- Public Engagement, Stewardship, and Strategic Communication

ASCA9 offers the insights and cross-disciplinary networking needed to drive innovation.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21860>

Original Link:

<https://docs.google.com/forms/d/e/1FAIpQLSfWce3TgctOp0T64T1InMZKI9yyLvy0pFaB9Xsqlhm2ey0JUA/closedform?pli=1> (Sign up link)

ISAAA Report Features Updates in Biotech Regulation and Adoption in Asia and Oceania

The global agricultural landscape is shifting, and the Asia-Pacific region is commanding center stage. According to the report ISAAA Brief 57: Global Status of Commercialized Biotech/GM Crops in 2024, Asia has officially become a powerhouse, accounting for nearly 10% of global biotech crop plantings in 2024, with 20.81 million hectares under cultivation. Driven by nine pioneering countries, the region is demonstrating an aggressive growth trajectory. India leads the adoption with its global dominance in Bt cotton, while China accelerates commercial scale-up with massive regulatory approvals for GM maize and soybeans. Meanwhile, Australia has made history by granting the world's first approval for a disease-resistant GM banana alongside climate-resilient crop traits.

However, the Asian biotech landscape reveals considerable variation across neighboring nations. Pakistan and Myanmar have mirrored India's success with GM cotton adoption rates soaring past 94%, while Southeast Asian nations like the Philippines and Vietnam maintain steady, robust momentum in biotech maize. Conversely, the market presents complex challenges, as seen in the decelerating momentum for Bt brinjal in Bangladesh and the relatively low adoption levels in Indonesia.

To help industry leaders, investors, and researchers capitalize on these emerging opportunities, ISAAA released the Biotech Facts and Trends: Asia & Oceania report, which delivers essential adoption information and regulatory analysis. Purchase your copy today for only US\$15 from the ISAAA website.

ISAAA Link: <https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21877>

NATIONAL NEWS

Pakistan, IFAD Agree to Deepen Partnership for Agricultural Transformation and Rural Prosperity.

April 2nd 2026

Federal Minister for National Food Security and Research Rana Tanveer Hussain held a meeting with an International Fund for Agricultural Development (IFAD) delegation led by Country Director (Asia) Ms. Fernanda Thomaz Da Rocha to discuss strengthening cooperation for sustainable agriculture and rural development in Pakistan. The Minister highlighted the longstanding Pakistan–IFAD partnership since 1979 and appreciated IFAD’s contributions to poverty reduction, livelihood improvement, and rural development initiatives, particularly in areas such as Gilgit-Baltistan and the coastal districts of Sindh. He emphasized the need to expand IFAD’s financial and technical support to address climate change challenges, modernize agriculture, develop value chains, and promote innovative farming practices.

The IFAD delegation reaffirmed its commitment to Pakistan, highlighting ongoing support for improving farmer productivity, strengthening market access, empowering rural youth, and building climate resilience. The meeting reviewed progress on programmes including the National Poverty Graduation Programme and discussed opportunities for further collaboration in agricultural research, innovation, and capacity building through initiatives such as a proposed Centre of Excellence with the Pakistan Agricultural Research Council. Both sides agreed to enhance cooperation and scale up development initiatives aimed at improving food security, sustainable agricultural growth, and rural prosperity in Pakistan.

Original Link:

<https://mnfsr.gov.pk/Detail/ZmJiNjEwOTUtMjM5NC00ZDcwLWFhMTMtMTM5YWNiMGM1MmU5>

Pakistan’s Agricultural Exports to China Gain Momentum

April 6 2026

Pakistan’s agricultural exports to China continued to grow in early 2026, driven mainly by cotton yarn and sesame seeds, according to China’s customs data. Cotton-related exports rose to **\$74.63 million** during January–February 2026, supported by strong demand from China’s textile hubs, while sesame seed exports surpassed **\$14.07 million**, reflecting increasing demand from the food processing and edible oil sectors. Major Chinese provinces, including Fujian, Zhejiang, Guangdong, Anhui, Beijing, and Shandong, remained key destinations for Pakistani agricultural products. The trend highlights expanding opportunities for Pakistan in China’s textile, food processing, and beverage industries, strengthening agricultural trade ties between the two countries.

Original Link: https://www.nation.com.pk/06-Apr-2026/pakistan-s-agricultural-exports-china-gain-momentum?utm_source=chatgpt.com

Director CEMB-PU Speaks on Biotechnology and Food Security at Pakistan Academy of Sciences Dialogue

April 7 2026

Prof. Moazur Rahman, Director of the Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, participated as a panelist in the national dialogue **“Biotechnology — A Strategic Tool to Address Climate Change and National Food Security,”** organized by the Pakistan Academy of Sciences on April 7, 2026. During the session on “Biotechnology and Pakistan’s Food Security Future,” he highlighted CEMB’s contributions to the development of Pakistan’s indigenous three-gene cotton technology. He noted that the increasing resistance of insect pests to Bt cotton poses a growing challenge, making it essential to implement effective stewardship practices and accelerate the adoption of next-generation cotton technologies. Prof. Rahman also emphasized the importance of investing in advanced poultry vaccines to protect the expanding poultry industry, describing it as a key pillar of Pakistan’s food security and rural economy.

Original Link: <https://pu.edu.pk/home/section/exam/17024>

Government Moves to Ensure Fertilizers Stability for Food Security and Agricultural Growth

April 9 2026

Federal Minister for National Food Security and Research Rana Tanveer Hussain chaired a high-level Fertilizer Review Committee meeting to assess fertilizer availability and preparedness for Kharif 2026 and Rabi 2026–27. The committee noted that the Rabi urea supply remained stable, with sufficient production and an estimated closing stock of 8 lakh tonnes, though concerns were raised over the adequacy of buffer stocks during peak demand and gas supply constraints affecting Agri-tech. The Minister directed stakeholders to ensure uninterrupted fertilizer production through consistent gas supplies, prepare realistic production scenarios assuming all plants are operational from July 2026, and strengthen monitoring to prevent urea smuggling driven by large domestic and international price differences. The meeting also highlighted rising fertilizer costs, particularly DAP, as a challenge for farmers, reviewed pricing issues in the urea market, and discussed measures to stabilize DAP supplies despite planned import constraints. Reaffirming the government’s commitment to national food security, the Minister called for close coordination, transparent supply chains, strict price monitoring, and proactive measures to ensure adequate fertilizer availability at affordable prices during upcoming cropping seasons.

Original Link:

<https://mnfsr.gov.pk/Detail/ZmQxYTk0ZDYtN2NhMi00ZjZjLTg4M2ItN2ExZDc0NDBiYTgz>

OIC-COMSTECH, Huawei Technologies Forge Strategic Partnership thru Establishing ICT Academy

April 15 2026

OIC-COMSTECH and Huawei Technologies have signed an MoU to launch a joint ICT Academy in Islamabad, aimed at boosting digital skills and empowering youth across OIC member and observer states. The academy, inaugurated at the COMSTECH Secretariat, features advanced digital infrastructure to support virtual learning, practical ICT training, and real-time collaboration. Officials, including the Pakistan Telecommunication Authority chairman, described the initiative as a strategic move to strengthen the region's digital ecosystem.

COMSTECH leadership emphasized that the partnership will help drive digital self-reliance by equipping young people with modern technological skills, while Huawei reaffirmed its commitment to talent development through global training programs. The academy will offer certifications in key fields such as 5G, artificial intelligence, cloud computing, and cybersecurity, serving as a hub for high-quality, blended learning and supporting innovation and technological growth across participating countries.

Original Link: <https://www.app.com.pk/national/oic-comstech-huawei-technologies-forge-strategic-partnership-thru-establishing-ict-academy/>

Cabinet Approves Production of Vaccines In Country

April 29 2026

The Federal Cabinet, chaired by Prime Minister Shehbaz Sharif, approved several key national policies aimed at strengthening Pakistan's health, agriculture, and workforce development sectors. These included the country's first National Agriculture Biotechnology Policy, the National Seed Policy, the National Skills Development Policy, and a policy to promote domestic vaccine production, along with the establishment of a DRAP-led committee to oversee vaccine pricing and quality. The cabinet also approved the appointment of teachers as visiting faculty in the Federal Directorate of Education under the 2025 regulations, presented NEPRA's Annual Report 2025 and the State of Industry Report 2025, and discussed measures to enhance food security, agricultural productivity, farmer support, workforce skills, and international-standard training. The Prime Minister also expressed satisfaction with the government's management of rising global petroleum prices and briefed the cabinet on Pakistan's diplomatic efforts to help ease tensions in the Middle East.

Original Link: <https://www.radio.gov.pk/29-04-2026/cabinet-approves-policies-regarding-different-departments>

OIC-COMSTECH, Russian Federation Agree to Expand Cooperation In Higher Education, Science And Technology

May 14 2026

The OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH) and the Russian Federation agreed to expand collaboration in higher education, scientific research, emerging technologies, and academic exchange during the first OIC-COMSTECH–Russia Working Group Meeting held in Kazan. Co-chaired by COMSTECH Coordinator General Prof. Dr. M. Iqbal Choudhary and Russia’s Deputy Minister of Science and Higher Education Airat Gatiyatov, the meeting focused on strengthening cooperation in academic mobility, climate research, carbon supersite projects, fellowship programmes, mega-science initiatives, research infrastructure, and joint scientific programmes.

Prof. Choudhary highlighted Russia’s role as an important observer member of COMSTECH and stressed the value of scientific diplomacy, collaborative research, and technology-driven partnerships in addressing global challenges. The Russian delegation expressed its commitment to expanding cooperation in higher education, innovation, and research, while both sides agreed to promote long-term partnerships through joint academic programmes, scientific exchanges, collaborative research, and institutional linkages in priority areas of science and technology.

Original Link: <https://www.app.com.pk/national/oic-comstech-russian-federation-agree-to-expand-cooperation-in-higher-education-science-and-technology/>

Pakistan, China Discuss Livestock Genetics Cooperation

May 14 2026

Federal Minister for National Food Security and Research Rana Tanveer Hussain reaffirmed the government’s commitment to modernizing Pakistan’s livestock sector through advanced breeding technologies, improved dairy productivity, and expanded exports of livestock products and genetic material during a high-level meeting with a Chinese delegation. Discussions focused on strengthening bilateral cooperation in livestock genetics, buffalo embryo exports, biotechnology, and dairy development. The Chinese delegation expressed strong interest in Pakistan’s internationally recognized dairy buffalo breeds, particularly the **Neeli Ravi buffalo**, highlighting the growing global demand for elite dairy genetics and the potential to enhance agricultural trade between the two countries.

The meeting also emphasized the need to establish an internationally compliant framework for exporting biological and genetic material through a proposed Material Transfer Agreement (MTA) to protect Pakistan’s intellectual property while facilitating long-term international collaboration. Experts noted that Pakistan’s superior livestock breeds, including the **Neeli Ravi buffalo** and **Sahiwal cattle**, position the country to become a leading global supplier of climate-resilient, high-yield dairy genetics. Both sides agreed to expand cooperation in livestock biotechnology, embryo transfer, and genetic enhancement, with the government pledging continued support for international partnerships that promote innovation, investment, export growth, and sustainable development in Pakistan’s livestock sector.

Original Link: <https://www.nation.com.pk/14-May-2026/pakistan-china-discuss-livestock-genetics-cooperation>

Pakistan Moves to Liberalize GM Rules with Major Biosafety Reforms

May 26 2026

Pakistan has decided to significantly liberalize its regulation of genetically modified organisms (GMOs) by approving major amendments to the country's 2005 biosafety rules. The reform includes simplified licensing procedures, easier imports of GM crops, and expanded opportunities for biotechnology research. The decision was made during a meeting of the National Biosafety Committee in Islamabad attended by officials from the Ministry of Climate Change, the Pakistan Environmental Protection Agency (Pak-EPA), and industry experts. The proposed amendments have already been recommended for cabinet approval.

One of the key reforms is the removal of the "sunset clause" introduced in 2024, which limited GM imports until January 2027. Under the revised framework, imports of genetically modified soybeans and canola will continue without a fixed expiration date.

The updated rules also formally recognize modern gene-editing technologies and grant greater authority to universities and private research institutions. Institutional Biosafety Committees will be allowed to independently approve student and laboratory research projects without lengthy bureaucratic procedures. In addition, multinational biotechnology companies will be able to directly apply for licenses for specific GM products. Once approved by the National Biosafety Committee, these licenses will be published on the Pak-EPA website, allowing private importers to bring in approved GMO products without obtaining separate permits.

Pakistan's government says the reform is aimed at making the regulatory system more open, science-based, and investment-friendly. Officials expect the changes to support the edible oil, animal feed, and food processing sectors, which heavily rely on imported GM raw materials.

Original Link: <https://ukragroconsult.com/en/news/pakistan-moves-to-liberalize-gm-rules-with-major-biosafety-reforms/>

Pakistan, China, OIC's COMSTECH Launch Joint Lab to Develop Herbal Medicine

June 07, 2026

Pakistan, China, and the Organization of Islamic Cooperation's (OIC) COMSTECH have launched a joint laboratory in Zhejiang, China, to advance research and development in herbal medicine by integrating Traditional Chinese Medicine and Unani medicine. Announced during the 2026 International Symposium on Traditional Chinese Medicine–Unani Medicine Cooperation and SCO Member States Traditional Medicine Industry Exchange Forum, the initiative is a collaboration between Ningbo University and COMSTECH. The laboratory will conduct collaborative research, clinical and pre-clinical studies, support the international registration of traditional medicine products, and promote academic exchanges and researcher training. Staffed by a multidisciplinary team of 50 researchers, including 30 Chinese and 20 international experts,

the facility aims to strengthen scientific innovation, talent development, and healthcare applications in traditional medicine across China, Pakistan, OIC member states, and Shanghai Cooperation Organization (SCO) countries.

Original Link: <https://www.arabnews.com/node/2646254/pakistan>

Roadblocks in the Implementation of Prime Minister's National Agriculture Biotechnology.

June 12, 2026

The approval of Pakistan's National Agricultural Biotechnology Policy by the Prime Minister and Federal Cabinet marked an important milestone for modernizing agriculture through science-based innovation, improved seed systems, food security, and higher farmer productivity. Developed through extensive consultations with government institutions, scientists, regulators, academia, industry, and provincial stakeholders, the policy now requires timely and consistent implementation. The key challenge is no longer the absence of policy but delays, procedural uncertainty, and the repeated reopening of issues that have already been assessed through established biosafety and regulatory processes. Such delays undermine confidence among farmers, researchers, investors, and technology providers, preventing the country from realizing the policy's intended benefits.

The article argues that genetically modified (GM) maize has already undergone years of biosafety testing, regulatory review, and local performance trials in Pakistan, demonstrating significant yield advantages and the potential to improve agricultural productivity, food security, and export competitiveness. It emphasizes that concerns over markets and coexistence can be managed through established practices such as segregation and identity preservation, while opposition driven by narrow commercial interests should not override national agricultural priorities. With many leading agricultural economies already adopting GM maize, Pakistan risks falling behind if implementation continues to stall. The author concludes that the government should remove administrative roadblocks, ensure transparent and science-based regulation, and implement the approved policy through clear stewardship, monitoring, and farmer awareness so that the country can fully benefit from agricultural biotechnology.

Original Link: <https://profit.pakistantoday.com.pk/2026/06/28/roadblocks-in-the-implementation-of-prime-ministers-national-agriculture-biotechnology>

Pakistan Pitches Biotech Policy, Livestock Ties to Germany

June 19, 2026

Pakistan and Germany have agreed to strengthen cooperation in agriculture, livestock development, food security, research, and technology transfer. During a meeting between Federal Minister for National Food Security and Research Rana Tanveer Hussain and German Ambassador Ina Lepel, both sides discussed improving agricultural productivity through research, certified seeds, mechanization, climate-resilient crops, livestock genetics, advanced reproductive technologies, and vaccine development. Pakistan highlighted its upcoming Biotechnology Policy as a step toward promoting innovation and attracting investment, while seeking collaboration in

food safety, traceability, dairy modernization, and agricultural technology. Germany welcomed Pakistan's agricultural modernization efforts and expressed interest in expanding partnerships, with both countries committing to joint research, capacity building, and sustainable agricultural development.

Original Link: https://mettisglobal.news/Pakistan-pitches-biotech-policy-livestock-ties-to-Germany-61275?utm_source=chatgpt.com

Global Recognition: University of Hyderabad Alumni Lead Agri-Biotech Expansion at Bharat Innovates 2026

June 17, 2026

The University of Hyderabad (UoH) alumni network gained international recognition at Bharat Innovates 2026, held in Nice, France, from June 14–16, 2026, where ATGC Biotech Pvt. Ltd. was selected among 120 of India's most promising deep-tech startups. Co-founded by UoH alumni Dr. Markandeya Gorantla and Dr. V.B. Reddy, both graduates of the University's Department of Plant Sciences, the company showcased India's growing leadership in agricultural biotechnology. During the event, ATGC announced two major international collaborations: a licensing agreement with Albaugh Europe for six crop protection products based on its patented CREMIT pheromone technology, and the expansion of its global presence through SEMIOPHORE LTD., a joint venture with Luxembourg Industries Ltd. to develop 18 products for international markets.

Founded in Genome Valley, Hyderabad, ATGC Biotech specializes in sustainable, pheromone-based crop protection that manages pests by disrupting insect mating rather than using conventional insecticides. The company's innovative approach, branded as "Insect Family Planning™ for Sustainable Agriculture," has already been deployed across more than 200,000 acres and is expanding through partnerships across Europe, the Americas, and Asia. Reflecting on the achievement, Dr. Markandeya Gorantla highlighted India's transition from a manufacturing-driven economy to a global innovator in first-in-class technologies and intellectual property, crediting the University of Hyderabad as the foundation of their scientific journey. Their success exemplifies how UoH alumni are transforming academic research into globally impactful solutions for food security and sustainable agriculture.

Original Link: <https://www.thehansindia.com/hans/education-careers/global-recognition-university-of-hyderabad-alumni-lead-agri-biotech-expansion-at-bharat-innovates-2026-1087198>

Genetically Modified Maize Licences Likely to be Renewed.

June 28, 2026

The federal government is considering renewing licences for the commercial cultivation and sale of genetically modified (GM) maize in Pakistan, with the National Biosafety Committee (NBC) set to review applications from GMO seed companies after postponing its 38th meeting. Previous licences issued to Corteva Pvt Ltd and Bayer Pvt Ltd were limited to confined field trials and expired in 2019 and 2022, respectively. However, all biosafety licences for GM maize import and field trials were suspended in 2019 over concerns about health, environmental safety, and the risk

of cross-pollination contaminating non-GM maize. Officials also noted that the absence of a National Agricultural Biotechnology Policy has complicated Pakistan's commitments under the Cartagena Protocol on Biosafety.

During a June 10 Technical Advisory Committee meeting, experts and stakeholders raised concerns over the commercialisation of GM maize. Officials from the Pakistan Atomic Energy Commission, environmental agencies, and national security institutions argued that Pakistan already has strong maize yields, while reliance on imported GM seed technology could threaten agricultural security and exports. Representatives from the ISI and local maize exporters warned that adopting GM maize could negatively affect exports to markets such as the European Union, where GM crops face strict restrictions. The meeting also highlighted that countries including India, China, Türkiye, and Australia have either prohibited or tightly regulated GM maize cultivation, underscoring the need for broader consultation before any commercial approval is granted.

Original Link: <https://www.dawn.com/news/2010875>

Govt must Implement National Agricultural Biotechnology Policy : Crop Life Pakistan Demands

June 29, 2026

CropLife Pakistan Executive Director Rashid Ahmed welcomed the federal government's approval of Pakistan's first National Agricultural Biotechnology Policy and National Seed Policy 2026, calling it a major milestone for strengthening food security, agricultural productivity, farmer support, innovation, and the seed and biotechnology sectors. He said the biotechnology policy was developed through nearly two years of consultations involving government institutions, scientists, provincial representatives, regulators, and private-sector stakeholders. Ahmed also rejected what he described as misleading media reports about GM maize, explaining that regulatory field trials began in 2009 under the Pakistan Biosafety Rules and Guidelines 2005, with commercialization approvals granted in 2016–17 after all statutory requirements were met. He clarified that these approvals later expired due to the absence of a comprehensive biotechnology policy, not because of safety concerns.

Ahmed further stated that the new policy provides a clear framework for advancing GM crop commercialization, including yellow maize. He rejected claims that China and India have abandoned GM maize, noting that both countries are progressing with regulated approvals and field trials. He argued that GM maize poses no new contamination risk since Pakistan's livestock and poultry sectors already rely on imported GM soybean and canola, while existing seed stewardship practices can ensure purity. Highlighting Pakistan's annual maize export earnings of around USD 350–400 million, he said adopting advanced maize technologies could further boost production and exports. He warned that continued delays in renewing GM maize commercialization licenses would discourage investment, leave Pakistan behind regional competitors, and deny farmers access to technologies that could improve productivity and incomes.

Original Link: <https://epinews.com.pk/english/archives/1858>

OIC-COMSTECH Trains 5,000 Scientists across 54 Countries Annually

July 07, 2026

COMSTECH, the OIC Ministerial Standing Committee on Scientific and Technological Cooperation, expanded its scientific and educational initiatives to 54 countries during 2024–25, according to its annual performance report. The Islamabad-based organization implemented 174 projects, organized 68 training programmes that trained 5,000 scientists and researchers, awarded 759 scholarships and fellowships, and provided 52 research grants. Its programmes benefited participants from numerous OIC member states and partner countries, supporting higher education, biotechnology, health sciences, information technology, vaccine technology, and international scientific collaboration.

The report also highlighted COMSTECH's work across sectors including health, education, research, agriculture, food security, biotechnology, climate change, engineering, energy, and science diplomacy. The organization expanded its collaboration network to more than 80 universities and research institutions to promote joint research and academic exchange. COMSTECH Coordinator General Prof. Dr. Muhammad Iqbal Choudhary emphasized that strengthening scientific capacity, supporting young researchers, and fostering international cooperation are central to COMSTECH's mission of advancing socio-economic development and long-term scientific partnerships across the Muslim world.

Original Link: https://margallatribune.com/oic-comstech-trains-5000-scientists-across-54-countries-annually/?fbclid=IwY2xjawTeLfRleHRuA2FlbQIxMABicmlkETFmSGNpSkZvZzhiOG1PTHI4c3J0YwZhcHBfaWQQMjIyMDM5MTc4ODIwMDg5MgABHpw8hW-iZILCjwBFLXrigCbm6VCeXlSpxawKgbW3_r8kLidE5sTikEQ79C_aem_Zs1t1KhiBtSe0BfQB7Tfow

Approval of Agri Biotechnology, Seed Policies Welcomed.

July 12, 2026

CropLife Pakistan Executive Director Rashid Ahmed welcomed the federal government's approval of Pakistan's first National Agricultural Biotechnology Policy and National Seed Policy 2026, describing them as major milestones for improving food security, agricultural productivity, farmer welfare, and innovation in the seed and biotechnology sectors. He said the biotechnology policy, approved in April 2026 after extensive consultations with government agencies, scientists, regulators, provinces, and industry stakeholders, provides a clear regulatory framework for the safe adoption of modern agricultural technologies and research-driven innovation. Ahmed also clarified that GM maize trials conducted by CropLife member companies began in 2009 under Pakistan's biosafety regulations and that commercialization approvals granted in 2016–17 met all legal requirements, with licences later expiring due to the absence of a comprehensive biotechnology policy rather than safety concerns.

Rashid Ahmed urged the government to proceed with the commercialization of GM crops, particularly yellow maize, arguing that modern biotechnology could significantly increase crop yields, quality, and export earnings. He rejected claims that countries such as China have not adopted GM maize, noting that China has approved several GM maize and soybean varieties under a regulated system, while India continues to allow confined field trials. He added that Pakistan already exports \$350–400 million worth of maize annually and that the poultry and livestock sectors rely on imported GM soybean and canola for feed. Warning against further delays in renewing commercialization licences, he said prolonged uncertainty would discourage investment, slow agricultural innovation, and deny farmers access to technologies that could improve productivity, incomes, and global competitiveness.

Original Link: <https://www.nation.com.pk/12-Jul-2026/approval-agri-biotechnology-seed-policies-welcomed>

COMSTECH and the OIC Launch a Program to Train Healthcare Staff in Benin to Reduce Maternal Mortality.

July 14, 2026

COMSTECH, in collaboration with the Organization of Islamic Cooperation (OIC) and the Ministry of Health of the Republic of Benin, organized a four-day training programme in Cotonou from 13–16 July 2026 to strengthen the prevention and management of postpartum hemorrhage in emergency obstetric care. The initiative aimed to enhance the skills of healthcare professionals, improve maternal and newborn healthcare, and reduce maternal mortality. Speaking at the opening ceremony, OIC Assistant Secretary-General for Science and Technology Ambassador Aftab Ahmed Khokher praised Benin's commitment to maternal health and COMSTECH's efforts in advancing healthcare capacity, emphasizing that the programme reflects solidarity and scientific cooperation among OIC member states.

COMSTECH Coordinator General Dr. Muhammad Iqbal Choudhary highlighted the organization's broader health initiatives, including support for pharmaceutical regulation, vaccine development, traditional medicine, disease surveillance, and specialized medical training across member states. The programme, delivered by Dr. Fiza Ali Khan and Dr. Sana Khan, combined theoretical instruction with practical simulations and clinical training for healthcare providers in Cotonou's districts 5 and 6, equipping them to effectively manage obstetric emergencies. The initiative underscores COMSTECH and the OIC's commitment to strengthening healthcare systems, building human capacity, and advancing maternal and newborn health across member states.

Original Link: <https://www.oic-oci.org/en/news/8159>

Islamabad Opens Two-Day Pakistan, China Health Care Investment Conference to Boost Pharma Cooperation.

July 17, 2026

Islamabad hosted the Pakistan–China Pharmaceutical & Healthcare B2B Investment Conference 2026, a two-day event jointly organized by the Special Investment Facilitation Council (SIFC),

the Ministry of National Health Services, and the Drug Regulatory Authority of Pakistan to strengthen investment and collaboration in the pharmaceutical, healthcare, and biotechnology sectors. The conference brought together around 160 Chinese companies represented by nearly 180 delegates and 340 Pakistani businesses to explore joint ventures, technology transfer, contract manufacturing, research partnerships, and local production opportunities. Highlighting Pakistan's reliance on imported pharmaceutical raw materials despite producing 85% of its medicines domestically, Health Minister Mustafa Kamal emphasized the importance of business-to-business engagement to boost local manufacturing and innovation. The event is expected to enhance Pakistan's healthcare ecosystem, improve the competitiveness of its pharmaceutical industry, and deepen long-term industrial cooperation between Pakistan and China.

Original Link: <https://www.arabnews.com/node/2651265/amp>

Government Reviews Wheat Distribution Strategy at High-Level Wheat Board Meeting

July 18, 2026

Federal Minister for National Food Security and Research Rana Tanveer Hussain chaired a high-level Wheat Board meeting to review Pakistan's wheat availability, provincial requirements, and distribution strategy. The meeting concluded that provincial demand for wheat exceeded the stocks available with PASSCO, prompting the government to explore the import of approximately 1 million tonnes of wheat to ensure uninterrupted supplies and strengthen national food security. The proposed import quantity is based on the requirements submitted by the provinces. The Minister assured participants that all provinces would be consulted throughout the import process, particularly regarding the quality specifications of the imported wheat. He emphasized that the wheat would be distributed transparently and equitably according to each province's needs, while reaffirming the government's commitment to maintaining stable wheat supplies, protecting consumers, and ensuring timely availability of wheat across the country.

Original Link:

<https://mnfsr.gov.pk/Detail/MTkxYjY1NTMtY2I4ZS00Y2M4LTkwMmMtZDQwZmZmZjAxNzY1>

Call for Stronger Science Diplomacy as COMSTECH Launches Journal.

July 26, 2026

Pakistan's Foreign Secretary Ambassador Amna Baloch called for stronger science diplomacy and greater scientific cooperation among OIC member states at an event celebrating the second anniversary of the *Journal of Science Communication and Diplomacy*. The ceremony brought together ambassadors, diplomats, scientists, academics, and representatives from leading scientific organizations, including the Higher Education Commission, Pakistan Academy of Sciences, ECO Science Foundation, and diplomatic missions from several countries.

Speaking at the event, COMSTECH Coordinator General Prof. Muhammad Iqbal Choudhary highlighted science diplomacy as a vital tool for addressing global challenges through international

collaboration, innovation, and evidence-based policymaking. He emphasized the scientific potential of the OIC's 57 member states and outlined COMSTECH's ongoing efforts to strengthen research partnerships, scholarships, fellowships, academic mobility, and capacity-building programs. Ambassador Baloch stressed that global challenges require collective solutions, advocating for stronger links between science and foreign policy, increased scientific collaboration within the OIC, and greater participation of developing countries in governing emerging technologies.

Original Link: <https://www.dawn.com/news/2018356>

UPCOMING BIOTECH. AND RELEVANT EVENTS

ONLINE SEMINAR Building Climate Resilient Smart Cities for a Sustainable Future under the OIC-COMSTech Forum on Environment and Ecosystem Restoration (CFEER)

Date: 20th August 2026

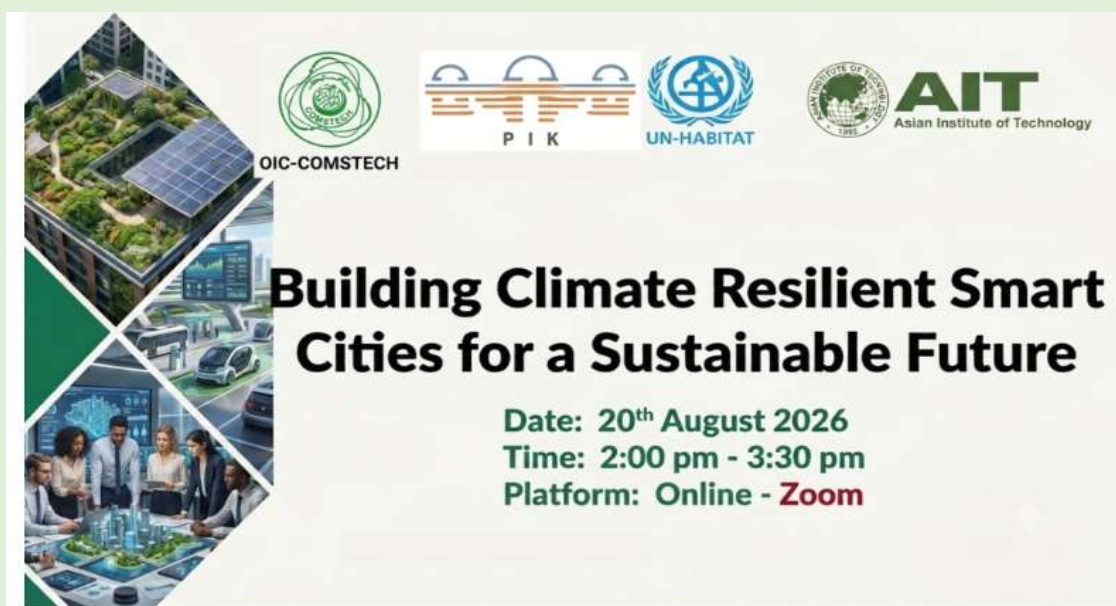
Time: 2-3:30 pm

Rapid urbanization and climate change are reshaping cities across the world, particularly in OIC Member States where growing populations continue to place increasing pressure on infrastructure, natural resources, and essential public services. Rising greenhouse gas emissions, unsustainable construction practices, urban heat, flooding, air pollution, and declining green spaces have made climate resilience a priority for sustainable urban development.

To address these challenges, OIC-COMSTech, under the Forum on Environment and Ecosystem Restoration (CFEER), is organizing an online seminar on “Building Climate Resilient Smart Cities for a Sustainable Future.” The seminar will bring together researchers, policymakers, practitioners, and students to explore innovative strategies, digital technologies, and collaborative approaches for developing smarter, more inclusive, and climate-resilient cities across OIC Member and Observer States.

Objectives

- To promote integrated approaches for developing climate-resilient and sustainable smart cities.
- To strengthen the link between scientific research, technology, and urban policymaking.
- To share practical strategies for sustainable urban infrastructure, mobility, energy management, and climate adaptation.



Building Climate Resilient Smart Cities for a Sustainable Future

Date: 20th August 2026
Time: 2:00 pm - 3:30 pm
Platform: Online - Zoom

Registration Link

https://docs.google.com/forms/d/e/1FAIpQLScwP8kasv9Qexho3ibO6bgoi7PMAMQ_sp62T4Q_jjzFG6jD2Q/viewform?usp=send_form&pli=1&authuser=0

COMSTECH Training Program on Youth Skill Development on Solar Power Solutions for Distributed Power Generation

Date: 5th – 9th October, 2026
Registration Deadline – 1st September 2026

Introduction:

As the global demand for clean and sustainable energy continues to rise, solar power has emerged as one of the most effective solutions for addressing energy shortages, reducing carbon emissions, and supporting economic development. Distributed power generation, in particular, offers an innovative approach by enabling energy production closer to the point of use, increasing efficiency, reliability, and accessibility. Realizing the importance, OIC-COMSTECH, under the COMSTECH Forum on Environment and Ecosystem Restoration (CFEER) has launched the Training Program on Youth Skill Development on Solar Power Solutions for Distributed Power Generation. The program is designed to empower young professionals, students, researchers, and technical practitioners with practical knowledge and hands-on skills in modern solar energy systems.

The training will bring together distinguished experts, industry leaders, and international speakers who will share their knowledge and experiences in renewable energy technologies. Participants will gain valuable insights into the latest trends, challenges, and opportunities in the solar energy sector.

Objectives

The program aims to equip youth with practical skills and knowledge in solar energy, with a focus on distributed power generation.

- To enhance awareness of safe, efficient, and cost-effective solar technologies
- To develop hands-on technical skills in solar system installation, operation, and maintenance.
- To gain practical skills in implementing basic solar power systems for distributed energy generation.
- To supporting youth in gaining knowledge and generating opportunities in the solar energy sector.
- To promote the use of renewable, and sustainable energy solutions for environmentally friendly power generation.



COMSTECH Training Program on:

Youth Skill Development Program on Solar Power Solutions for Distributed Power Generation

Date: 5th - 9th October 2026

GUEST SPEAKERS

 Enamul Karim Head, Renewable Energy Program Infrastructure Development Company Limited, Bangladesh	 Prof. Dr. Adnan Ibrahim Deputy Director Solar Energy Research Institute, Research Complex University Kebangsaan Malaysia	 Dr. Ahmed Sobhi Consultant Renewable Energy World Bank	 Mr. Saad Muzamil Chief Operating Officer Digital Energy Pakistan	 Mr. Haris Akram Programme Manager OIC-COMSTECH
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Physical Participations



Virtual



Focus Areas:

Solar Power Generation
Solar PV System Designing
Installation / Troubleshooting

 Email: info@comstech.org Website: www.comstech.org COMSTECH Secretariat
33 Constitution Ave, 8-8/2
D-8, Islamabad

Registration Link

For Physical Participation

<https://form.jotform.com/261622334895462>

For Virtual Participation

<https://docs.google.com/forms/d/e/1FAIpQLSf9HihI04TSJSUgcrywdQehKu6ED1EzfhYkGU76s2igE4DenA/viewform>

OIC-COMSTECH Future Farming Training Program for OIC Member States (2 Weeks)

19–30 October 2026
Islamabad, Pakistan & Online (Hybrid Mode)

The OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH), and the Islamic Organization for Food Security (IOFS), are pleased to announce a joint two-week Future Farming Training Program, aimed at strengthening agricultural capacity across OIC Member and Observer States.

Program Overview

Agriculture remains a cornerstone of economic development and food security in many OIC countries. However, enduring challenges such as climate change, water scarcity, low productivity, and limited adoption of modern technologies continue to hinder growth in this sector. This training program is designed to equip participants with advanced knowledge and practical skills in modern, climate-smart agriculture. The training will be conducted in a hybrid format, combining in-person workshops in Islamabad with online participation from across OIC Member and Observer States.

Key Objectives

- To promote adoption of precision and digital agriculture technologies
- To develop skills in plant biotechnology to smart systems
- To enhance food security through sustainable and climate-smart farming
- To strengthen post-harvest management and agri-value chains
- To foster innovation and entrepreneurship in agriculture



Registration Link

https://docs.google.com/forms/d/e/1FAIpQLScoAMvpSWzG_kB4zFw67nnJJ3s8jBztgpGtyQ9S4tQ-jbnvw/viewform

International Aerospace Technology Exhibition and Conference

Aerospace technology is one of the most advanced and strategically vital sectors, driving innovations in communications, defense, space exploration, and environmental monitoring. Despite the growing importance of aerospace capabilities globally, most OIC member states are underrepresented in this field due to limited investments, capacity gaps, and fragmented collaboration.

Recognizing the urgent need to build indigenous capabilities and strengthen cooperation among OIC Member Countries, OIC-COMSTECH proposes a technology exhibition and conference to bring together stakeholders from government, academia, industry, and research institutions. This initiative aims to create a unified platform for knowledge-sharing, policy dialogue, and technology partnerships that reflect the collective aspirations of the Islamic world in aerospace innovation.

Objectives:

To catalyze capacity-building, collaboration, and technological advancement in aerospace sectors among OIC member states.

- To showcase current developments and capabilities in aerospace technologies within the Muslim world.
- To identify opportunities for joint research, development, and industrial collaboration among OIC countries.
- To highlight the role of academia and youth in advancing aerospace innovation.
- To promote policy dialogue on space governance, airspace security, and peaceful uses of space.
- To establish a permanent working group or platform for aerospace cooperation under OIC-COMSTECH.



The poster for the Aerospace Technology Exhibition & Conference features a dark blue background with a subtle pattern. At the top, the OIC-COMSTECH logo is displayed, consisting of two circular emblems flanking the text "OIC-COMSTECH" and "Organization of Islamic Cooperation (OIC) Ministerial Standing Committee on Scientific and Technological Cooperation". Below this, the event title "AEROSPACE TECHNOLOGY EXHIBITION & CONFERENCE" is written in large, bold, yellow capital letters. The date "DATE : 11-13 NOVEMBER, 2026" is in white. The venue "VENUE : COMSTECH SECRETARIAT" and the organizer "ORGANIZED BY OIC - COMSTECH" are also in white. A central graphic shows a yellow circle with icons of a satellite, a rocket, a space station, and an astronaut. To the right of this graphic, the text "APPLY NOW" is in red, followed by two dark blue buttons labeled "CONFERENCE" and "EXHIBITION". Below these buttons, a list of topics is provided: "AEROSPACE ENGINEERING", "SATELLITE TECHNOLOGY", "MATERIAL SCIENCE", "AVIONICS", "PRECISION ENGINEERING", and "VACUUM TECHNOLOGIES". At the bottom, the word "PARTNERS" is in yellow, followed by logos for ICESCO, SUPARCO, CITADEL, and PAeC. The website "WWW.COMSTECH.ORG" is at the very bottom.

Registration Link

<https://form.jotform.com/252191717905460>

3rd International Climate Change and Water Conference (ICCW 2026) & 10th Series of International Water Conference (IWC 2026)

Theme: *Sustainable Water Management in a Changing Climate*

Dates: 25–26 November 2026

Venue: OIC-COMSTECH Secretariat, 33 Constitution Avenue, G-5/2, Islamabad, Pakistan

OIC-COMSTECH, in collaboration with Riphah International Institute of Public Policy (RIPP-Riphah), Istanbul Aydin University (Türkiye), Tashkent State Transport University (Uzbekistan) including other partners, like; University of Haripur, University of Baltistan, USPCAS-W, NUML, Institute of Research Promotion (IRP), TesPak, PCRWR, and BRC Iraq, is organizing the 3rd International Climate Change and Water Conference (ICCW 2026) and the 10th Series of International Water Conference (IWC 2026).

The conference aims to bring together researchers, academicians, policymakers, practitioners, and development partners to exchange cutting-edge research findings, policy perspectives, and practical solutions for sustainable water management in the face of climate change.

Conference Sub-Themes

- Climate-Smart Water and Agriculture Practices/Systems
- Technology and Innovation for Climate and Water Challenges
- Awareness, Policy and Governance in Climate Adaptation

3RD ICCW 2026 & 10TH SERIES OF IWC SUSTAINABLE WATER MANAGEMENT IN A CHANGING CLIMATE 25-26 NOV 2026, OIC-COMSTECH, ISLAMABAD-PAKISTAN RIPHAAH-IAU-TSTU

CALL FOR PAPERS

30 JULY 2026	ABSTRACT SUBMISSION
15 AUGUST 2026	ACCEPTANCE LETTER ISSUANCE
30 OCTOBER 2026	FULL LENGTH PAPER

SUB-THEMES

- Climate Smart Water & Agriculture Practices/Systems
- Technology & Innovation for Climate & Water Challenges
- Awareness, Policy & Governance in Climate Adaptation

25-26 NOVEMBER 2026 ISLAMABAD

Registration Link: <https://forms.gle/zJ4RxRTV8g93iAxo6>

<https://iwc.riphah.edu.pk/>

Registration Link

<https://docs.google.com/forms/d/e/1FAIpQLScu3EN1TncB53fNMhNjP1VNsreieVRyx1pkqUfzHhgswVVBgQ/viewform>

UPCOMING NATIONAL BIOTECH EVENTS

- **8th International Conference on Emerging Trends in Bioinformatics & Biosciences (ICETBB-2026).**
10–12 September 2026, Hazara University, Mansehra.
(<https://www.hu.edu.pk/public/index.php/events/international-conference-bioinformatics-biosciences-icetbb-2026?utm>)
- **Enhancing Genome Editing and Crop Biotechnology Capacity for Climate-Resilient Agriculture in OIC Countries.**
22–25 September 2026, CEMB, Lahore
(https://www.cemb.edu.pk/?page_id=19420&utm)
- **Challenges of Soybean Production in Pakistan.**
25 September 2026, CEMB, Lahore
(https://www.cemb.edu.pk/?page_id=19420&utm)
- **Forensic DNA Analysis: From Molecular Techniques to Data Interpretation.**
26 November 2026, CEMB, Lahore.
(https://www.cemb.edu.pk/?page_id=19420&utm)
- **11th Invention to Innovation Summit.**
14–15 November 2026, University of the Punjab, Lahore.
(<https://pu.edu.pk/invention/?utm>)
- **International Conference on AI and Robotics Applications in Biotechnology.**
15 November 2026, Faisalabad, Pakistan.
(<HTTPS://CONFERENCEALERTS.CO.IN/EVENT/101234380>)
- **International Conference on Environmental Biotechnology and Food Security (ICEBFS)**
22-23 October 2026, Peshawar, Pakistan.
(<https://internationalconferencealerts.com/event-icebfs-peshawar-pk-202610-101318517>)
- **International Conference on Resilient Agroecosystems and Biodiversity Management (ICRABM).**
2nd December 2026, Karachi, Pakistan.
(<https://conferencealerts.co.in/karachi/agriculture>)

UPCOMING INTERNATIONAL BIOTECH EVENTS

- **Hong Kong International Biotechnology Conference & Exhibition**
9–12 September 2026, Hong Kong.
(<https://www.bio-hk.com/?utm>)
- **3rd European Congress on Public Health and Epidemiology**
14-15th September 2026, London, UK.
(<https://publichealth.c2pforum.com/>)
- **BioProcess International 2026**
22–25 September 2026, Boston, USA.
(<https://www.conferank.com/conferences/bioprocess-international>)
- **BIOSPAIN 2026.**
29th September-1st October 2026, Bilbao, Spain.
(<https://biospain.com/>)
- **International Forum on Industrial Biotechnology & Bioeconomy (IFIB 2026)**
1–2 October 2026, Rome, Italy.
(<https://www.ifib.bio/?utm>)
- **18th International Conference and Exhibition on Pharmacology, Drug Discovery, Pharmacotherapy**
6-8 October 2026, Dubai, UAE.
(<https://pharmacy.ucgconferences.com/registration>)
- **BIO-Europe 2026**
9-11 November 2026, Cologne, Germany.
(<https://www.conferank.com/conferences/bio-europe>)
- **Global Biotech Summit**
11-12 November, Abu Dhabi
(<https://globalbiotechexpo.com/>)