

Exploration of another successful PPP with BAU

After the successful PPP with IRRI, ACI is further extending its association with potential partners. In collaboration with Bangladesh Agricultural University (BAU), ACI has started a 3-year long project to develop and launch an affordable soil testing kit in the market. While BAU will act as the inventor, ACI will be the facilitator of the kit in execution level. The kit box will be affordable for all farmers and will be widely available through all the dealer points. A compatible software with the soil testing kit will suggest if there is any deficiency in any parameter of the soil (i.e.

organic matter, soil PH condition, Zinc, NPKS, Boron, Mg). With this innovation in hand, farmers will now understand the need for balanced fertilization in a better way. Besides, they can also look for better soil solutions with the help of the software.

With this new high-tech advancement, we hope to serve our farmers with better solutions.

Dr. F H Ansarey
Executive Director
ACI Agribusiness



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Cotton is cultivated in more than 80 countries of the world and it covers around 2.5% of the total cultivable land.



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Superamino Injection



Superamino Injection is an Amino Acid Solution with Electrolytes Vitamin B complex & Dextrose.

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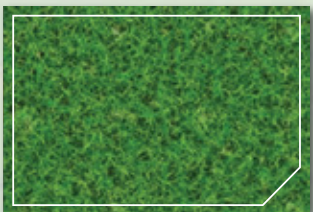
Satellite Remote Sensing Training for PDS Team

A training program on the application of satellite remote sensing for ACI Seed PDS team was held 18 – 19 June 2016 at Rural Development Academy (RDA), Bogra.



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Scientists Discover "Rewired" Stomata Genes in Grasses



A new study from Carnegie Institution for Science reveals how the regulation of stomata development in grasses could be used to improve plant efficiency and agricultural yield.

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Cotton Breeding for Bangladesh: Hybrids are more potential than Transgenics

Cotton is cultivated in more than 80 countries of the world and it covers around 2.5% of the total cultivable land. Bangladeshi textile sector is the second largest apparel producer in the world and its main raw material is cotton which has a very low production in the country. The total requirement of cotton in the textile industry is about 4 million bales where we could produce only 0.1 to 0.2 million bales. The rest of the requirement is fulfilled by the imports from the cotton growing countries. The main reason for this low production is the lack of interest of the farmers due to low yield and longer time in growing the plant. Most of the cotton farmers stopped growing cotton for its declining prices all over the world a few years back and to get them back in harvesting cotton a revolutionary step is required. This revolution can take place by breeding hybrid varieties of higher potential than transgenics to start with.

The hybrid seed of cotton has been introduced a few years ago by Cotton Development Board (CDB) and has gained some successes. In collaboration with some private institutions, CDB has produced few types of hybrid seeds which have been well received by the farmers due to its high yield and less harvest time. However, the total requirement is far ahead from the present production and the imports are becoming expensive day by day. To come out of this situation we have to increase the production drastically, which is possible only by hybrid cotton seeds at the initial period of own development process. The production is almost double with these hybrid seeds and the plant itself prevents many of the harmful insects from damaging the plant. Many of the private sector partners have taken the initiative in breeding the hybrid varieties and marketing those to the contract farming groups.

Even though the CDB has started working with trans

genic cotton, the negative side of working with GMOs will encourage hybrid cotton to boost production in Bangladesh. Although there has been the release of transgenic cotton varieties in Bangladesh but is still in its preliminary stages and the regulations governing the release of genetically modified crops in Bangladesh and their maintenance etc. will take more time to for farmers to harvest the crop for economic advantage. The question about the development of pest resistance also arises in regard to transgenic cotton. The problem can be reduced through gene stacking, but this presents further problems of genetic advance by the basic germplasm. Based on the hindrance mentioned and others, releasing a successful commercial transgenic cotton line can take up to 13-14 years from the time the first cross is made. Even with the use of DNA markers commercial release of transgenic cotton will take time.

Hybrid cotton, on the other hand, is readily available in the market, and can increase yield until the promising transgenic lines are released. The hybrids have at least 4 valuable characteristics incorporated in new materials, which include shorter duration, pest resistance, adaptability and high yield potential. Cultivation of hybrids has been successful in India for the past 46 years and promising varieties can be brought to Bangladesh for adaptation. To strengthen hybrid further research is taking place to create cytoplasmic genetic male sterile lines.

Cotton, a crop of high promise in the southern belt of Bangladesh. Not only for industrial uses of cotton but also for high-quality seed oil and a feed ingredient of livestock and fisheries.

Prof. Lutfur Rahman

Advisor, ACI Agribusiness & Head of Advanced Seed Research & Biotech Centre



Innovation and New Products

Superamino Injection

Superamino Injection is an Amino Acid Solution with Electrolytes Vitamin B complex & Dextrose. Each 100 ml of Superamino contains L-Valine 8 mg, Lysine HCL 10 mg, Sodium acetate 250 mg, L-Leucine 11 mg, Cysteine HCL 5mg, Calcium Chloride 2H₂O 150 mg, L-Isoleucin 5mg, Vitamin B1 10 mg, Potassium Chloride 200 mg, Arginine HCL 5 mg, Riboflavin-5-Phosphate Magnesium Histidine HCL 3.5 mg, sodium 4 mg, Sulfate 7H₂O 200 mg, L-Methionine 3 mg, Calcium Pantothenate 5mg, Dextrose H₂O 5g, L-Phenylalanine 7 mg, Niacinamide 150 mg, Methyl Paraben 180 mg, L-Threonine 4.6 mg, Vitamin B5 10 mg, Propyl Paraben 20 mg, L-Tryptophan 2 mg, Vitamin B12 5mg, and Distilled water q.s. It is used for the supply of high concentration of glucose, vitamin B complexes, amino acids and electrolytes for metabolizing in weakened animals. Use of Superamino increases milk, meat & egg production. It also increases immunity and decreases mortality while enhancing food nutrition value. Superamino injection is manufactured by Woo-gene B&G (Korea). It was launched by ACI Animal Health in June 2016. It is available in 250 ml and 500 ml bottle.



Plex-Zn

On 6 June 2016, ACI Animal Health launched Plex-Zn which is supportive for the treatment of enteritis (diarrhoea) and rapid increase of body weight. Plex-Zn is an organic trace mineral produced in a unique production process, the "Snowball Technology". It contains Zinc 9% (as amino acid analogue glycinate). Plex-Zn is present as glycinate form, which is supersoluble in water. It provides guaranteed high bio-availability, high absorption and less drug-drug interaction. It has multiple benefits for Layer/Broiler/Breeder, Cattle and Fish. For example, it makes the bone structure stronger for layer, protects hoof and udder health of cattle and is a supportive treatment of Epizootic Ulcerative Syndrome (EUS), Gill disease and Fin and Rot disease for fish. It is manufactured by Phytobiotics (Germany). Plex-Zn is available as 100 ml bottle.



Nephroflush Liquid

On 13 June 2016, ACI Animal Health launched Nephroflush Liquid, which improves Renal System Functioning of poultry. Each liter of Nephroflush Liquid contains Sodium Fluoride 8 mg, Butyric Acid 15 mg, Amino nitrogen 105 mg, Nephromodulators 32 mg, Potassium Chloride & Citric acid 35 g (as fortified base). It is used to improve the renal system functioning. In the management of Gout and Ascites, its application is suitable. To protect kidney from pathogens, poultry farmers can use Nephroflush Liquid. Through its use, the birds' health and performance improves greatly by detoxification mechanism and endogenous Vitamin C generation. Improved re-absorption of vital nutrients/ electrolytes and haemopoiesis (blood formation) etc. are noticed as well. It helps to maintain the ionic/electrolyte/solute homeostasis in the body. Nephroflush Liquid reduces the mortality due to Gout/Ascites of poultry and assists faster rejuvenation of renal tissue while improving profitability of poultry farming. It is available in 100 ml pack.



Satellite Remote Sensing Training for PDS Team

A training program on the application of satellite remote sensing for ACI Seed PDS team was held 18 – 19 June 2016 at Rural Development Academy (RDA), Bogra. The aim of the training was to support 'Intelligent Decision Support System (IDSS) for farmers' program. The training was organized to train the technicians who will collect field data regularly from the demarcated GPS satellite coordinates.

IDSS is a collaborative program currently being implemented by ACI in partnership with SNV Netherlands Development Organization (Bangladesh Office), Nelen and Schuurmanns (Netherlands), SarVision (Netherlands) and the program is co-financed by ACI and Netherlands Space Office. The purpose of IDSS is to develop a decision support system to give reliable and timely advice to farmers in Bangladesh. In this way the farmer's decision-making along the entire production cycle and the overall food production will improve, damages for farmers will be reduced and the

profitability of the farmer's operations will increase. Ms. Evelyn Aparicio Medrano, IT specialist/Consultant (Nelen & Schuurmanns); Pieter Hendrik Buijs, Consultant (Nelen & Schuurmanns), Nicolas Grondard, Project Manager (SarVision), Robin Verhoeven, Remote Sensing Specialist (Satelligence) were present in the training as speakers from partner organizations. Mr. Mohammad Abdul Hadi, Head of GIS and Remote Sensing shared his experiences from ACI. The training program was facilitated by Mr. Shamim Murad, Head of Partnership & Business Development, ACI Agribusiness. From ACI Seed PDS team, two PDS Officers Mr. Md. Samiul Islam (Bogra) and Mr. S M Azad Mollik (Patuakhali) and Assistant PDS Manager Dr. Mohammad Muhebbullah Ibne Hoque attended the training as trainee as they will be responsible for collecting field data. The whole team visited Bogra PDS Station at Mohishbathan and Rice field at Amino Village, Sherpur to acquire practical knowledge.



Events and Activities

Promising Cucumber Variety Showcased in Field Day

On 13 June 2016, ACI Seed arranged a field day on the promising cucumber variety 339 (proposed name "Green-2"). The field day was held at Padmadanga, Mollarhat, Bagerhat district. More than a hundred farmers, dealers, and retailers attended the field day on this newest hybrid cucumber variety available.

The main objective of such field days is not only to inform and educate farmers but also to give them a hands-on experience to see and evaluate new varieties in the field. In the field day on new cucumber variety 339, farmers, as well as retailers, observed its yielding ability and fruit size. After comparing it with the top cucumber varieties in

the market, the participants found it highly suitable for cultivation. The program was chaired by Mr. Sarder Ali Mortuza, Business Manager, ACI Seed. Two of the participants - Mr. Ahia Shekh, Proprietor of Zafar Machineries, Mollarhat, Bagerhat and Mr. Kazi Usman, Proprietor of Nahid Beej Bhandar, Fakirhat, Bagerhat, shared their experiences on this variety. Mr. Md. Abdullah Al Masud, Product Manager delivered a resourceful speech for the stockiest and growers regarding the benefits of cultivating this variety. Mr. Sumon Hossain, Area Sale Manager and Mr. Miraz, Marketing Officer were also present in the field day.



ACI Fertilizer: 3 Regional Business Workshops in June'16

In June 2016, ACI Fertilizer arranged 3 Regional Business Workshops covering all areas of its country operation. The workshops were held on the eve of the 2nd half of the year and were aimed to facilitate necessary business planning and strategy. Three workshops were held on 7, 9 and 11 June in Bogra, Khulna, and Comilla respectively. The first workshop, held in Sadar, Bogra on 7 June 2016, was attended by the Field Force of Rangpur and Rajshahi Zones including RSM, AM, TO, Executive Bulk and MDO. The second workshop was held on 9 June 2016 in Sadar, Khulna where all Field Force of Jessore Zone participated. The last workshop was held on 11 June 2016 in Sadar, Comilla. All Field Force of Dhaka and Comilla Zones attended the workshop in Comilla.

Business Director of ACI Fertilizer inaugurated the meeting and pointed out important factors for possible future business improvement. Sales Manager gave a specific plan on sales and collection. Detailed discussions on new product strategies, special sales program for the month of June along with lucrative incentive packages were communicated by the ACI Fertilizer's product management team. The session was followed by the presentation on sales and collection performance by the Regional Sales managers and their teams. The regional teams also discussed the scopes of improvement and their required support from the Head office management for better performance in June 2016. The workshops made the regional teams confident to accomplish their projected target through extensive promotional activities and proper customer relationship management.



Events and Activities

ACI Fertilizer & BAU Collaboration Meeting

A collaboration meeting between ACI Fertilizer and Bangladesh Agriculture University (BAU) was held on 21 June 2016 at BAU campus in Mymensingh. The agenda of the meeting was to develop and promote an efficient soil testing kit. Participants of the meeting, which include the teachers, Ph.D. Students of BAU and ACI Fertilizer Officials, discussed to finalize the testing parameters of soil testing kit and the measurement of kit box. A decision was made to launch the kit by September 2016. Primarily it will be possible to test Organic Matter, pH, N, P, K, S using the kit. Later, two more parameters will be added to the kit. Another decision made in the meeting was to develop organic fertilizer at different combination using different types of raw materials; especially focusing on Municipality

Solid Waste. The research will also include developing crop specific nutrients enriched organic fertilizer and organo-chemical. Mr. Sarder Ali Mortuza, Business Manager, ACI Seed; Mr. Yusuf Alam, Product Manager and Mr. Asadur Rahman, Product Executive of ACI Fertilizer were present in the meeting.

Bangladesh Agriculture University (BAU), Mymensingh is working for developing a Soil Testing Kit with better efficacy under University – Industry Collaboration Research Sub-Project. BAU will be the inventor of the kit and ACI will promote the kit in the field. The objective of the project is to recommend the farmers the right fertilizers at right dosage for better crop production.



ACI Motors signs deal with Yamaha

ACI Motors will be the new distributor of Yamaha brand motorcycle in Bangladesh with immediate effect as confirmed by ACI Motors Ltd through a press conference on 22 June 2016 at ACI Centre, Dhaka. ACI Motors concluded the contract with Yamaha Motor group regarding the distributorship of Yamaha motorcycles and its spare parts in the country from June 2016. Dr. F H Ansarey, Executive Director, Agribusiness, Mr. Subrata Ranjan Das, Chief Business Officer, ACI Motors, Eng. Asif Uddin, General Manager (Service & Product Development), Mr. Md. Robiul

Haque, Manager Service & Spares, ACI Motors, and Mr. Rajib Noor, Assistant Product Manager, ACI Motors were present in the press conference.

In the press conference, Mr. Rajib Noor explained the heritage of Yamaha motorcycles and stated that Yamaha is available in almost 200 countries which sold 10% of all the motorcycles sold worldwide in the year 2015. Yamaha goes with the motto of CS which states that Customer Supply, Service & Safety and their brand slogan REVS YOUR HEART, which states the engine of the bike.



Events and Activities

Spirit of Ramadan Shared with Iftar

ACI Motors arranged Iftar parties to share the spirit of Ramadan with its customers, dealers, stakeholders, as well as government and non-government officials at various spots all over Bangladesh. These Iftar parties took place in 152 locations majority of which were in

Dhaka, Bogra, Rangpur, Feni, Sylhet, and Jessore. Around 2,700 people participated in these spot Iftars. Having Iftar together in the holy month of Ramadan is an opportunity for ACI Motors to build up the relation with its reputed customers, dealers, and stakeholders.



ACI Agrolink at National Fruit Fair'16

ACI Agrolink participated in the three-day-long National Fruit Fair held 16 - 18 June 2016 at Khamarbari, Dhaka. The fair was organized by Department of Agricultural Extension (DAE), Ministry of Agriculture. Mango lovers could look forward to a fascinating display of lip smacking varieties in the ACI Agrolink stall during the fair. Besides, an awareness building campaign on marketing and purchasing safe mangoes also took place during the event. Mr. Tofael Ahmed, Honorable Minister of Commerce and Ms. Matia Chowdhury, Honorable Minister of Agriculture had visited ACI Agrolink stall and praised ACI's role in national agriculture development.

ACI Agrolink focused on the local production of quality mangos where farmers took proper measures in every step and adopted post harvesting technology. Partnering with USAID-AVC, it has sourced the best quality mangos and made it available in Dhaka City through the retail and online channels. The very idea of promoting chemical-free mango at a reasonable price is inherited from its mission of "Safe Food".

ACI Agrolink is offering different types of mangoes along with its flagship product "MANGOZ" in an attractive 5KG gift box. For an order of 2 boxes, home delivery is available. Consumers can call 09612999977 or visit www.mangoz.biz to place orders.



Photo Courtesy: Daily Samakal

Scientists Discover "Rewired" Stomata Genes in Grasses

A new study from Carnegie Institution for Science reveals how the regulation of stomata development in grasses could be used to improve plant efficiency and agricultural yield. Their work focused on the stomata of grasses, a family that includes maize, rice, and wheat. Scientists studied stomata in grasses since their stomata show several unique innovations. Grass stomata are dumbbell-shaped and are aligned in rows along the leaf blade. Scientists have speculated that these are the reasons for their evolutionary success.

The research team studied the regulatory systems that turn genes on and off and determine how grasses control the number of stomata to make, where to put them, and their distinct shape. They found that grasses have the same stomata genes as other plants but use them in different ways. This is similar to two circuits having similar components, but with different wirings. This "rewiring" can partly explain how grasses form different stomata with superior physiology. Knowledge of this in grasses could potentially be game-changing in improving the performance of plants for food or fuel use.

(Source: Crop Biotech Update, International Service for Acquisition of Agri-Biotech Applications. www.isaaa.org)

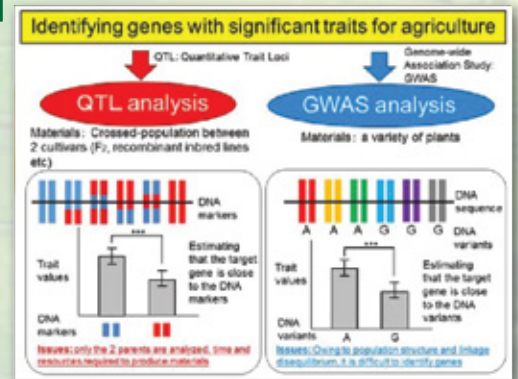


Four Newly-ID'd Genes Could Improve Rice

A Japanese research team has applied a method used in human genetic analysis to rice and rapidly discovered four new genes that are potentially significant for agriculture. These findings could influence crop breeding and help combat food shortages caused by a growing population. The paper was published in the online edition of Nature Genetics. Selective crop improvement based on plant genetics and breeding is essential to support the world's growing population. In order to efficiently breed new crop varieties, it is necessary to rapidly identify the genes related to high crop yields and analyze what makes them special.

Until now the genetic analysis of crops has mainly been based on quantitative trait loci (QTL) analysis, but this method requires time to develop experimental populations. Another method known as genome-wide association studies (GWAS), frequently used to analyze human genes, uses data from many extant individuals to analyze genes in a short time span. Various plant species have also been analyzed using this method, but there have been very few cases of successful analysis.

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)



Two main methods for gene identification: QTL analysis and genome-wide association study (GWAS). This time the team focused on GWAS.

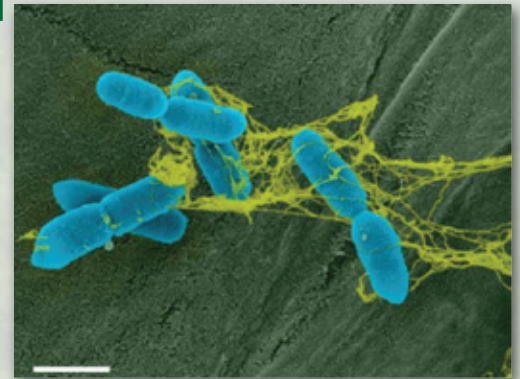
Photo Credit: Kobe University

How Soil Bacteria Fight to Escape Root Traps

Soil is full of microbes. Specialized border cells at the outer surface of plant roots fight off these microbes as the roots penetrate the soil in search of water and nutrients. A study published on June 23rd in PLOS Pathogens reveals how plant pathogens fight back against entrapment by sticky root border cell secretions. *R. solanacearum* is a soil-borne bacterium that causes destructive wilt disease in a wide range of plants, including economically important crops like potato, tomato, and banana. *R. solanacearum* lives in the soil, smells out roots, enters them through wounds or natural openings, then multiplies and spreads, eventually obstructing the water-transport system and causing the plant to wilt and die. Caitilyn Allen, from the University of Wisconsin in Madison, USA, and colleagues, used pea, a model system for studies of root border cells, and tomato, an economically important natural host, to study interactions between border cells and the of *R. solanacearum* pathogen.

Upon contact with *R. solanacearum*, the researchers found, both pea and tomato root border cells respond by releasing DNA, thereby forming sticky traps that entangle the bacteria. The researchers observed that about 25% of the entangled bacteria were killed in the traps. The anti-bacterial activity depended both on the presence of extra-cellular DNA and of histone H4, a DNA-associated protein present in plant and animal cells. When the researchers exposed pea roots to several types of harmless bacteria, no DNA was secreted, suggesting that the reaction is a specific defense against harmful attackers.

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)



This is a false-color electron micrograph depicting bacteria (blue) and the DNA-based trap (yellow).

Photo Credit: Tran et al.; CCAL

'Amazing Protein Diversity' Discovered in Maize

Doreen Ware, lead scientist in a new research to analyze and annotate the depth of maize genome says that "it is a lot more exciting" than previously believed. Ware, from the U.S. Department of Agriculture and Cold Spring Harbor Laboratory (CSHL) in New York, reports that their research establishes the amazing diversity of maize that has great importance for agriculture.

Ware was part of the multinational team in 2009 that assembled the first-ever sequence of maize's 30,000 or so genes. The discovery of maize's extraordinary protein diversity is based on more accurate "long-read" sequencing technology. This updated technology did not reveal many previously unknown genes, but rather, many more of the RNA messages that are generated when genes are activated. In all, 111,151 RNA transcripts from genes expressed in six different maize tissues were read and analyzed in the research. About 57% of these messages had never been seen – and therefore had never been sequenced. Many of maize's 30,000-odd genes can generate RNA messages that can be edited in different ways, leading to the production of different proteins with different shapes and different functions. The research reveals new functional parts used to be unknown, and gives insight into what those other parts are and what they do, making possible new ways to breeding and adapting maize.

(Source: Crop Biotech Update, International Service for Acquisition of Agri-Biotech Applications. www.isaaa.org)



Animal Hormone Melatonin involved in Plant Stress Tolerance



Melatonin, a well-known hormone that promotes sleep in humans and animals, is also involved in stress tolerance in plants, according to a recently published study.

Together with the University of Texas Health Science Center at San Antonio, Texas, USA, crop physiologists from the Department of Plant and Environmental Sciences at the University of Copenhagen has documented the roles of melatonin in drought priming and stress memory in barley. The study suggests that external melatonin application enhances drought priming induced cold tolerance (DPICT) and resulted in higher concentrations of abscisic acid (ABA) in barley. The interplay of melatonin and ABA results in plants that can better maintain water. According to first author Dr. Xiangnan Li and Associate Professor Fulai Liu, the senior author of the article, "Regulating melatonin production in plants via drought priming could be a promising approach to enhancing abiotic stress tolerance of crops in future climate scenarios."

(Source: Crop Biotech Update, International Service for Acquisition of Agri-Biotech Applications. www.isaaa.org)



Bees Prefer Plants with Nutrient-Rich Pollen

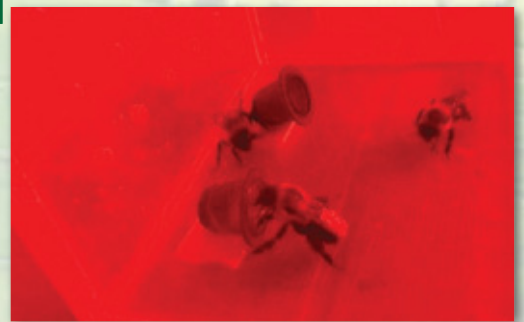


Bumble bees have discriminating palettes when it comes to their pollen meals, according to researchers at Penn State. The researchers found that bumblebees can detect the nutritional quality of pollen and that this ability helps them selectively forage among plant species to optimize their diets.

"Populations of many bee species are in decline across the world, and poor nutrition is thought to be a major factor causing these declines," said Christina Grozinger, director of the Center for Pollinator Research, Penn State. "Our studies can help identify plant species and stocks that provide high-quality nutrition for bumble bees and potentially other bee species, which will help in the development of pollinator-friendly gardens and planting strips." According to Anthony Vaudo, a graduate student in entomology who led the study, scientists previously believed that bees' preferences for flowering plants were driven by floral traits, such as color, scent, morphology or nectar concentration.

"Here we show that bumble bees actually choose a plant for the nutritional quality of its pollen," said Vaudo. "This is important because pollen is bees' primary source of protein and lipids." The researchers observed and recorded bumble bees as they foraged for pollen among host-plant species in an outdoor arena where the bees were restricted to only those plants. They then determined the carbohydrate, protein and lipid concentrations, as well as protein-to-lipid ratios (P:L), of the pollen from all the plants within the arena. The team analyzed the relationship between the foraging rates and the nutritional quality of the pollen. They report their results in the *Proceedings of the National Academy of Sciences*.

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)



The scientists conducted a laboratory cage study in which they placed bees in cages in the absence of floral cues. Instead of flowers, they presented the bees with fresh pollen from different plants. The scientist found that bees preferred pollen with higher P:L ratios.

Photo Credit: Anthony Vaudo, Penn State

Study Reduces Salmonella in Meat Products by 90%

An old technology that uses natural bacteria predators, called bacteriophages, is the focus of new research at the University of Nevada, Reno. The technique is being used to reduce salmonella bacteria in meat products. Assistant Professor Amilton de Mello, from the College of Agriculture, Biotechnology and Natural Resources at the University of Nevada, Reno, presented his research at the international American Meat Science Association's conference that ends today in Texas.

"We were able to reduce salmonella by as much as 90 percent in ground poultry, ground pork and ground beef," de Mello reported. "We're excited to be able to show such good results, food safety is an important part of our work and salmonella is one of the most prevalent bacteria in the nation's food supply." Salmonella is one of the most common causes of food borne illnesses in the United States. The bacteria can cause diarrhea, fever, vomiting and abdominal cramps. In people with weaker immune systems, or in young children and the elderly, it can be fatal. It is estimated to cause one million food borne illnesses in the United States every year, with 19,000 hospitalizations and 380 deaths, according to the Centers for Disease Control and Prevention.

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)



Assistant Professor Amilton de Mello, from the College of Agriculture, Biotechnology and Natural Resources at the University of Nevada, Reno, presented his research at the international American Meat Science Association's conference.

Photo Credit: University of Nevada, RenoClose

Gene Mutation Causes Juvenile Mortality in Cattle

Respiratory diseases are common ailments in calves. Hubert Pausch from the Chair of Animal Breeding at the Technical University of Munich in Germany and his team have traced a gene mutation in cattle responsible for it — a recessive mutation that alters the structure of the cilia of the airways. It only manifests in homozygous animals, where both parents were carriers of the mutation. The altered structure affects the movement of the cilia, preventing the expulsion of sufficient amounts of secretion from the respiratory tract leading to infections. This mutation on chromosome 19 had already been discovered several years ago.

When reviewing the genome databases of cattle breeding associations, the team discovered that the mutation rarely occurred in homozygous animals. However, they found out that homozygous offspring died immediately after birth and was not included in the database. So to clarify the cause of such high calf mortality, the scientists required information on homozygous calves not included in the database. They had to identify immediately after birth to be able to characterize them from a clinical perspective. The scientists found twelve homozygous calves: five were stillborn, three died within 30 days, and four were taken to the cattle hospitals. These four were underweight and had chronic respiratory diseases. The animals had to be put to sleep after a few weeks due to their deteriorating health. The pathological examination showed changes in the structure of cilia inside their airways.

(Source: Crop Biotech Update, International Service for Acquisition of Agri-Biotech Applications. www.isaaa.org)





Believe it or not!



Mango seeds are used to make soap due to its high stearic acid content.

A mango tree can grow as tall as 100 feet.

Mangoes are related to cashews and pistachios.

1 cup Mango can provide 100% of your daily vitamin C, 35% of your daily vitamin A and 12% of your daily fiber.

In many Latin American countries, mango on a stick with the skin peeled back is sold by street vendors



Nutrition Chart

Mango (per 100 g)	
Energy	250 kJ
Carbohydrates	15 g
Fat	0.38 g
Protein	0.82 g
Calcium	11 mg
Iron	0.16 mg
Magnesium	10 mg
Manganese	0.063 mg
Phosphorus	14 mg
Potassium	168 mg
Sodium	1 mg
Zinc	0.09 mg

Source: USDA Nutrient Database

Agro Tips

Intercropping is a multiple cropping practice involving growing two or more crops in proximity. The most common goal of intercropping is to produce a greater yield on a given piece of land by making use of resources that would otherwise not be utilized by a single crop. Careful planning is required, taking into account the soil, climate, crops, and varieties. It is particularly important not to have crops competing with each other for physical space, nutrients, water, or sunlight.

Mango intercropping with various cereal crops, especially paddy has been gaining momentum in the region, including its vast Barind tract for a long time as the growers in general are getting interested towards the farming. In the wake of adverse impact of climate change, the farmers face trouble to depend on only paddy cultivation for the last couple of years. To get more income and to recoup the losses, they can cultivate paddy, onion, garlic, brinjal, mustard, turmeric and papaya with mango as intercropping. By dint of excellent output, the farmers can create new mango orchards in the new method.

Sharing is caring!

We are familiar with bridges used by humans and vehicles. But have you ever heard about a bridge for animals? Though it may seem strange, there are actually numerous wildlife bridges worldwide. A wildlife bridge (or ecoduct) provides a safe crossing path for wildlife amidst the danger of highways. In a broader sense, wildlife crossings are structures that allow animals to cross human-made barriers safely.

The first wildlife bridges were constructed in France during the 1950s. European countries including the Netherlands, Switzerland, Germany, and France have been using various crossing structures to reduce the conflict between wildlife and roads for several decades and use a variety of overpasses and underpasses to protect and reestablish wildlife such as: amphibians, badgers, ungulates, invertebrates, and other small mammals. The Netherlands alone has over 66 wildlife crossings (including underpasses and ecoducts) that have been used to protect the wildlife.



A Wildlife Crossing at Highway A50 in the Netherlands

Courtesy: unusualplaces.org

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ACI Agribusinesses, the leading agriculture integrator in Bangladesh, is dedicated to gaining prosperity of Bangladesh through food security. ACI Agribusinesses offers complete solutions to farmers and also educates them about the technical know-how.