

Advancing Possibilities: Smart Technology for Balanced Fertilization

In Bangladesh, like most other developing countries, farmers face a common problem of imbalanced fertilization and nutrition for the soil. It is largely due to using excessive fertilizer or failing to provide the nutrients which are actually required according to the type of soil and crop produced. However, the problem has a technical challenge. Most of the farmers and other stakeholders don't have access to the technology for testing the soil and getting fertilizer recommendation based on the test result.

To address such a technical challenge, we need technical measures. Firstly, we need to know exactly the present state of the soil, analyzing its contents. Secondly, we need to identify the required elements to determine the required fertilizer with quantity. Using a soil testing kit, one can easily get the required data on type and available nutrients of the soil. Parameters such as pH, Organic Carbon, Nitrate Nitrogen, Ammoniacal-Nitrogen, Phosphorous, Potassium, Calcium, Magnesium, and Sulphur can be tested using such kits. Usually, these easy to use kits help in providing an index of nutrient availability or supply in the soil and the basis of fertilizer recommendation for a given crop thereof. Later, this data is processed in a laptop or smart mobile device using a fertilizer recommendation software. If we input nutrient details to the software, we will get the names of fertilizer with required quantity. Recommendations are made for both generic and crop-specific needs.

Recently, ACI Fertilizer launched its soil testing kit based fertilizer recommendation service. A training program for farmers and stakeholders was organized at Jessore to inform and demonstrate how farmers can easily get fertilizer solution/guideline for their soil to get a better yield by using soil testing kit. Such tests are made using Transchem Agritech Limited (India)'s Soil Testing kit and fertilizer recommendations are made using the software of Grameen Intel Social Business Ltd.

For farmers, knowing the soil nutrient levels and applying adequate proportions of fertilizers will eventually lead to increased harvests and decreased expenses. Moreover, such practices of balanced fertilization will gradually ensure sustainable farming and reduce environmental hazards caused by over-fertilization. Spreading the use of smart technology of nutrient analysis and recommendation software can surely lead to prosperity, advancing our possibilities.

Dr. F H Ansarey
Executive Director
ACI Agribusiness



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Barley, a widely grown cereal grain commonly used to make beer and other alcoholic beverages, possesses a large and highly repetitive genome that is difficult to fully sequence.

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Molecular techniques to breed high yielding Mung Bean varieties

Prof. Lutfur Rahman

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Pulses are most important group of legumes that supply most of the protein in the food and feed of the majority people of Bangladesh and their animal fish food sources. The group members contain about twice as much protein as cereals. The present production of pulses crops can meet not more than 30% of the total national demand. The rest 70% is being met up in every year by importing pulses grains. Mung bean (*Vigna radiata* L.) is one of the pulse crops that grows round the year (Three times) in Bangladesh. It provides grain for human consumption as it contains 19.5% to 28.5% protein. Mungbean supplies a substantial amount of nitrogen to the succeeding non-legume crops (i.e., rice) grown in rotation. Currently, this crop is being cultivated after harvesting of Rabi crops (i.e., wheat, mustard, lentil, etc.). As a short duration crop, it can be fitted in as a cash crop between major cropping patterns. The present area under mungbean cultivation is 27.44 thousand ha with a total production of 19.45 thousand tons with an average yield of 0.708 t/ha. which is a too low yield.

The development of molecular plant improvement technologies has provided mungbean researchers with methods to make greater yield and quality improvements. The recent release of a reference genome of the cultivated mungbean (*V. radiata* var. *radiata* VC1973A) and an additional de novo sequencing of a wild relative of mungbean (*V. radiata* var. *sublobata*) has provided a framework for mungbean genetic and genome research, that can further be used for genome-wide association and functional studies to identify genes related to specific agronomic traits. Moreover, the diverse gene pool of wild mungbean comprises valuable genetic resources of beneficial genes that may be helpful in widening the genetic diversity of cultivated mungbean. Molecular techniques involving Random Amplified Polymorphic DNA (RAPD), Restriction Fragment Length Polymorphism (RFLP), Single Nucleotide Polymorphism (SNP), and Simple Sequence Repeats (SSR) markers have long been applied toward improving mungbean and other crop, with a focus on yield, nutritional improvement, and disease resistance. These techniques are that could be useful for analyzing germplasm and genetic diversity and for constructing linkage maps.

Induced mutation breeding through the TILLING technique (Targeting Induced Local Lesions in Genomes) is a much heralded short cut technique to alter genotypes without going into the controversy of transgenics. Mung bean being a highly self pollinated crop having cleistogamous flower, creation of genetic diversity in the cultivated population is difficult through crossing programs. Thus one of the best ways is to create gene mutation using agents that has slow effect rather than drastic distortion of the genetic base. It has become of vital importance in breeding and has literature supporting the success in Mung Bean as well. One of the chief advantages of mutation breeding is that it can give rise to many different mutant alleles with different degrees of trait modifications. Once the selection from M2 or M3 populations can be done based on the desired traits of yield and disease tolerance, marker assisted selection using SSR primers can be done. Using this technique the population can be surveyed for the lines containing the desired trait at the molecular level. The selected lines only can then be advanced and taken to the field.



Innovations and New Products

Tomoko

On 2 August 2015, ACI Animal Health Launched Tomoko, a patented balanced mixture of probiotics and enzymes from Japan. Each 100 gm of Tomoko contains *Aspergillus awamori* 1.1×10^9 CFU, Yeast 30 gm, Acidic Protease 1,000,000 U, α -Amylase 2,000 U, Pectinase Xylanase 3,000 U, Phytase 1,000 U, Glucoamylase 500 U, Cellulase 400 U and Carrier q.s. to 100 gm. It increases digestion and appetite. Tomoko prevents and controls pneumonia and calf scour. It reduces the mortality and increases milk and fat% of milk. Tomoko also develops udder and increase body weight. It is manufactured by Biogenkoji Research Institute (Japan) and available as 100 gm sachets.



Events and Activities

New Hybrid Rice 'ACI-3' got NSB Approval

On 18 August 2015, National Seed Board (NSB) approved a new hybrid rice variety as ACI-3. ACI-3 is a fine grain variety of rice with a maturity period of 145-150 days. Its 1000 grain weighs 21.5g. Most importantly, its amylose content is 22% [Ref: ASRBC lab] which will be very palatable for consumers. The variety ACI-3 has come as a variety after Shankar (Hejia 303) in 2009. It is the 10th variety of ACI Seed business as approved by NSB. The NSB has recommended the variety for cultivating in Rabi/Boro at greater Mymensingh and Chittagong regions. The addition and approval of this new variety is a collective result of conducting internal trials, lab tests, and managerial communications for last two years.



Inception Workshop of Feed the Future Bangladesh Women's Empowerment Activity

On 4 August 2015, an inception workshop of Feed the Future Bangladesh Women's Empowerment Activity took place at Jessore. Dr. Md. Humayun Kabir, Deputy Commissioner, Jessore was the chief guest of the program. Ms. Zainab Akhter, Chief of Party, Feed the Future Bangladesh Women's Empowerment Activity gave an introductory presentation of the project. Representatives from ACI, DAE, Cooperative department, Women Affairs department, USAID, Winrock International, and DAM were also present. Mr. M. Saifullah, Chief Strategy Officer, ACI Agribusiness gave a presentation on behalf of ACI in the program.

Winrock International is implementing the Feed the Future Bangladesh Women's Empowerment Activity which is an innovative three-year program based on market-driven, community-led interventions. Grounded in an enabling environment that engages men, families, and communities, Feed the Future Bangladesh Women's Empowerment Activity will enhance women's leadership, income, assets, and decision-making in five Feed the Future zone of influence districts. The project will support Feed the Future by empowering 30,000 women and 7,500 men in 1,350 communities through increased contributions to production and household wellbeing.



Events and Activities

ACI Seed: Participatory Field Visit in Joypurhat



An interactive field visit involving 4 PDS officers took place on 18 August 2015 at Molamgari, Joypurhat. Along with PDS Manager Mr. Shapon Chandra (PDSO, Thankurgaon), Mr. Md. Samiul Islam (PDSO, Bogra), Mr. Tanvir Ahmed (MO, ACI-IBSc, RU Innovation Center), Mr. Jahangir Ali (PDSO, Jessore) and Asst. PDS Manager Dr. Mohammad Muhebbullah Ibne Hoque were present in the field visit. The team visited the rice field of Wadud Master's trial plot. The trial plots were found good at the early tillering stage. The visit aimed to learn practically how to make a layout of an experimental design scientifically. PDS Officers learned the techniques of conducting rice trial in a participatory way. A group of neighbor farmers of Molamgari village also gathered there to know about the objective of the trial. "Molamgari is a short duration rice growing area and a number of short duration rice varieties with high yield are included in the trial", PDS Manager explained.

The farmers also showed interest in modern agricultural techniques while sharing their problems, queries and experiences on rice. Dr. Akter Hossain, PDS Manager shared his knowledge and practical experiences over agricultural practices to be followed for rice production regarding land paddling and intercultural operations for better yield. PDS team also diagnosed the sheath blight disease in one of the rice fields. The farmers were advised to spray fungicide Proud 25 EC 20g/10L of water for 5% of the land.



On Job Coaching for 'Trial: Layout and Design'



An "On Job Coaching" titled "Trial: Layout and Design" was held on 19 August 2015 at International Hostel of Rural Development Academy (RDA), Bogra. It was arranged by ACI Seed to strengthen the capacity of PDS team for conducting trials in scientific way. PDS Manager Dr. Akter Hossain delivered an ingenious lecture on scientific layout and experimental design. As layout and design are the prerequisites for conducting scientific trial in the field, he emphasized on each and every topic of a trial. From the coaching, all participants gained knowledge of layout and design in a participatory way. They also learned about some important formulas and calculation regarding seed rate, spacing, and plant population. A very simple four-question evaluation was used at the end of the training course. Mr. Shapon Chandra (PDSO, Thakurgaon), Mr. Samiul Islam (PDSO, Bogra), Mr. Jahangir Ali (PDSO, Jessore), Mr. Tanvir Ahmed (MO, ACI-IBSc, RU Innovation Center) and Dr. Mohammad Muhebbullah Ibne Hoque (Asst. PDS Manager) attended the coaching. After the completion of the academic lecture, the team visited the trial plots of Okra, Pumpkin and Eggplant in R&D farm and Rice trial plot in Mahipur Agricultural Training Institute, Bogra.



Events and Activities

Farmers Meeting at ACI-RU Innovation Center



On 22 August 2015, a farmers' meeting was held at ACI & RU Innovation Center, IBSc, Rajshahi University. There were about 15 local farmers present in the meeting. Most of them were vegetable producers. Marketing Officer of IBSc facilitated the meeting. The program started at 10:00 am and ended at 11:30 am. The agenda of the meeting was to introduce scientific production technology of different vegetable crops such as Cauliflower, Cabbage, Brinjal, and Cucurbits. The participants discussed about crop selection, site selection, land preparation, water management, intercultural operation and different methods of pest management and pheromone trap. Moreover, a brief discussion on how to prepare poison bait to control insect at their vegetable fields took place. Farmers also shared their experience and technologies about crop production and pest management. After the meeting, they were highly impressed, motivated and committed to adopt new technologies and apply them in their fields.



Tech-enabled Fertilizer Recommendation Program launched



ACI Fertilizer organized a launching program and training session on soil testing kit based fertilizer recommendation program at Jessore in August 2015. The program was organized under the Women Empowerment Activity (WEA) project with the help of Win Rock International at Upazilla Auditorium, Keshobpur, Jessore on 24 August 2015. The main objective of the Program was to inform about how farmers easily can get fertilizer solution/guideline for their soil to get better yield by using soil testing kit. Mr. Sharif Raihan Kabir, Upazilla Nirbahi Officer, Keshobpur, Jessore was present as the chief guest and Mr. Sanjoy Kumar Das, Upazilla Agriculture Officer, Keshobpur, Jessore was present as the special guest of the program. There were 90 participants including officials and representatives from ACI

Fertilizer, Grameen Intel, Government, stockiest, retailers, and farmers. Mr. Zillur Rahman Khan, Regional Sales Manager, ACI Fertilizer gave the inaugural speech of the program. Mr. Debasish Bhattacharjee, Business Development Manager, Grameen Intel presented the training on "How to use Soil testing kit for digital fertilizer recommendation". Mr. Sarder Ali Mortuza, General Sales Manager, ACI Fertilizer gave his valuable speech regarding the project activities. The main objective of the program was to create awareness among the farmers to use balanced fertilizer based on nutrition status of the soil. Now, ACI Fertilizer will help the farmers to test their soil by using the Soil Testing Kit and get appropriate fertilizer recommendations.



Events and Activities

Extensive Promo for Balanced Fertilization

During the ongoing Amon season, ACI Fertilizer has conducted an extensive promotional campaign in August 2015. The promo targeted towards the traders and farmers took place under the Innovision Project in Bogra, Rajshahi, Jessore, Barisal, Manikgonj, Comilla and Chittagong areas. The main focus of the campaign was on balanced fertilization for appropriate crop production. ACI Fertilizer executed 17 Retailer Training Programs, 68 Farmers Training Programs, 11 Field Days (FFD), 11 Meetings with Department of Agriculture Extension (DAE) to inform about product application dose, application methods, quality and yield benefits of using balanced fertilizers. 6 workshops were also conducted with local NGOs to work jointly in the field on balanced fertilization.

Such campaign programs are bringing a positive feedback from the farmers and traders in terms of understanding and application of balanced nutrition.



Enhancing Skills: Exclusive Training for Fertilizer Field Force

ACI Fertilizer arranged three exclusive training programs on new products for the Field Force of Rajshahi, Bogra and Kushtia area. The main discussion of the training was on product knowledge with relevant selling and promotional strategy in the field. The Field Supervisors were trained up for a better understanding of their job responsibility. Mr. Rahen Julfikar, AM, Bogra arranged the program at Bogra on 13 August 2015 where Mr. Bashir Ahmed, Business Manager, ACI Fertilizer was present as the chief guest. Mr. Farid Akhter, AM, Rajshahi arranged the program at Rajshahi on 17 August where Mr. Sarder Ali Mortuza, General Sales Manager, ACI Fertilizer was present as the chief guest. On 17 August 2015, Mr. Abdul Sabur Khan, AM, Kushtia arranged the program where Mr. Yusuf Alam, Product Manager, ACI Fertilizer was present as the chief guest at Kushtia.



Events and Activities

Animal Health Sales Force visited China

Two teams of ACI Animal Health sales force visited Kunming, China from 16 to 21 August 2015. From the field sales force, 90 high achievers had the opportunity to take part in this tour to Kunming which is known as 'the City of Eternal Spring' for its pleasant climate and flowers that bloom all year long. The two teams for the visit to this capital of Yunnan Province of China was led by Mr. Shaheen Sarkar, Business Director, ACI Animal Health and Mr. Abdullah, GM, Marketing Operations, ACI Animal Health. The refreshing and rewarding trip came as an incentive to the commitment of reaching the goals from the sales force of the business.



21 Service Camps by ACI Motors in August

In August 2015, ACI Motors has serviced 415 Tractors in 21 different service camps. The service camps were organized at different parts of Dinajpur, Dhaka, Bogra, Jessore, Rangpur, Comilla and Sylhet regions. Total 9,860 customers and drivers participated in these camps. Customers enjoyed a 5% discount on all spare parts during the camps. Numerous discussions and awareness program on maintenance of Tractors took place. Moreover, road shows and special gifts for attending customers were also arranged.



Events and Activities

Dialogues with Tractor Stakeholders held

ACI Motors held two dialogue sessions with agents and stakeholders at Brahmanbaria and Habiganj in August 2015. On 16 August 2015, 35 agents participated in the dialogue at Brahmanbaria. Another dialogue session took place at Shayestaganj in Habiganj on 17 August 2015. Here 22 agents of ACI Motors participated. ACI Motors regularly organizes dialogues with stakeholders to uphold and celebrate the relation it has created with them over the time. Such events are also an occasion to strengthen the mutual understanding of the parties. Apart from the discussions, several instant sales and bookings for Tractors were also confirmed by the participants.



Agri-tech & Communication

Sequencing of barley genome achieves new milestone

Barley, a widely grown cereal grain commonly used to make beer and other alcoholic beverages, possesses a large and highly repetitive genome that is difficult to fully sequence. Now a team led by scientists at the University of California, Riverside has reached a new milestone in its work, begun in 2000, on sequencing the barley genome. The researchers have sequenced large portions of the genome that together contain nearly two-thirds of all barley genes.

The new information, published in *The Plant Journal*, will not only expand geneticists' knowledge of barley's DNA but will also help in the understanding, at the genetic level, of wheat and other sources of food. It also has applications in plant breeding by increasing the precision of markers for traits such as malting quality or stem rust.

"What we have now is much finer resolution of genetic information throughout the barley genome," said Timothy J. Close, a professor of genetics at UC Riverside and the corresponding author on the research paper. "This is an improved resource used throughout the world. Prior to this work, a long-held view was that the distribution of genes in the genomes of barley, wheat and their relatives is such that the gene-dense regions are only out near the ends of chromosomes where there is also a high rate of recombination. Our work revealed clear exceptions, identifying deviant regions that are gene-rich but low recombination."

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



Photo Credit: Close lab, UC Riverside

Scientists Turn Oily Soil into Fertile Ground

Rice University scientists are cleaning soil contaminated by oil spills in a way that saves energy and reclaims the soil's fertility. They use a process known as pyrolysis, which involves heating contaminated soils in the absence of oxygen. This approach is much better for the environment than standard incineration techniques for fast remediation, said Rice environmental engineer Pedro Alvarez. "Our original goal was to speed the response to oil spills, but our aspiration was to turn contaminated soil into fertile soil," said Alvarez, the George R. Brown Professor and chair of Rice's Civil and Environmental Engineering Department.

The new paper by Alvarez and his Rice colleagues in the American Chemical Society journal *Environmental Science and Technology* demonstrates how they've done just that. Off-shore oil spills tend to get the most attention, Alvarez said, but 98 percent of spills – more than 25,000 per year – occur on land. Industry and governments worldwide spend more than \$10 billion annually to clean up oil spills. The Rice team found that pyrolyzing contaminated soil for three hours not only reduced the amount of petroleum hydrocarbons left to well below regulatory standards (typically less than 0.1 percent by weight), but also enhanced the soil's fertility by turning the remaining carbon into beneficial char.

"We initially thought we could turn the hydrocarbons into biochar," Alvarez said. "We turned out to be partly wrong: We

didn't get biochar, but [we got] a carbonaceous material that we call char and resembles coke. But we were correct in thinking that by removing toxic pollutants and the hydrophobicity that repels water that plants need, and by retaining some of the carbon and perhaps some of the nutrients, we would enhance plant growth," he said.

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

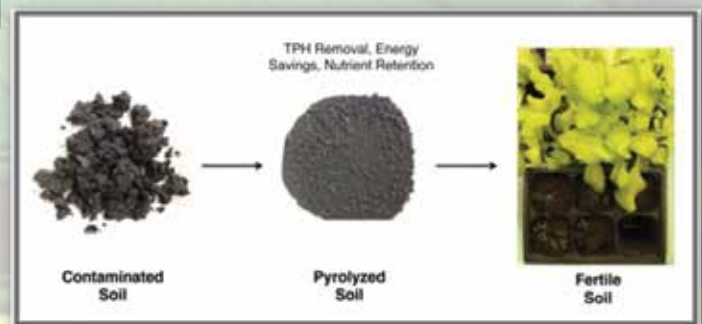


Photo Credit: Julia Vidonish/Rice University

Agri-tech & Communication

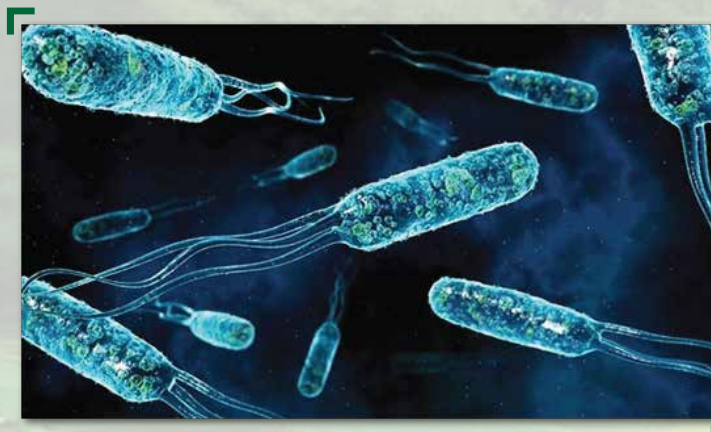
GE Bacteria Used as Water Contaminant Indicator



Researchers from FredSense Technologies in Canada developed a simple, cheap, and efficient tool to monitor water quality. The new tool is called FRED, which stands for Field-ready Electrochemical Detector. It uses genetically enhanced bacteria that sense different water-borne contaminants and then emit an electrical signal that indicates the intensity of contamination. The bacteria are placed in cartridges in a tester kit that are used for spot tests. Water is injected manually or automatically through the tubes, then into the cartridges containing the GE bacteria, chemicals and other components needed for the test. In the presence of contaminant, such as high level of arsenic, the GE bacteria produce an electroactive chemical as indicator.

"You can leave this box on-site and then from there you can wirelessly monitor remote locations without needing to go there and physically take a sample yourself," said Emily Hicks, one of founders of FredSense Technologies. FRED could be used in testing water close to mining sites, water treatment plants or anywhere clean, fresh, water is required.

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



New rice variety can fight global warming



Scientists in China have discovered a new variety of rice that will help tackle global warming and climate change, according to reports. The report in the journal Nature said that Chinese scientists have grown SUSIBA2 that meets the twin goals — it is high yielding and, at the same time, the fields growing this rice emit less methane than conventional varieties.

Flooded rice fields are a known source of atmospheric methane, the second most important greenhouse gas after carbon dioxide, and is said to be responsible for about 20 per cent of global warming. While increasing rice production has always been the primary objective of agricultural researchers, not much attention was paid to reducing methane emission from paddy cultivation. Existing efforts to mitigate rice-associated methane emissions have focused mainly on agricultural practices such as water management, fertilizer use, tillage and crop selection, which are labor intensive. The variety is the result of collaborative work of scientists from the Fujian Academy of Agricultural Sciences and Hunan Agricultural University in China with researchers in the Swedish University of Agricultural Sciences, Uppsala and the Pacific Northwest National Laboratory in Washington. The researchers generated SUSIBA2 by transferring genes from barley that are responsible for the production of starch in stems and grains using what is called 'transcription factor technology'.

(Source: Far Eastern Agriculture, www.fareasternagriculture.com)



The transgenic SUSIBA2 rice produces grains with high starch content by diverting more carbon (from photosynthesis) into grains and stems, and less into roots.

Photo Credit: CIAT/Flickr

Agri-tech & Communication

Honey bees rapidly evolve to overcome new disease

An international research team has some good news for the struggling honeybee, and the millions of people who depend on them to pollinate crops and other plants. These valuable pollinators have faced widespread colony losses over the past decade, largely due to the spread of a predatory mite called *Varroa destructor*. But the bees might not be in as dire a state as it seems, according to research recently published in *Nature Communications*. Researchers found a population of wild bees from around Ithaca, New York, which is as strong today as ever, despite the mites invading the region in the mid-1990s.

"They took a hit, but they recovered,"

said Alexander Mikheyev, a professor at the Okinawa Institute of Science and Technology Graduate University (OIST) in Japan and lead paper author. "The population appears to have developed genetic resistance." Mikheyev and his collaborators at OIST and Cornell University studied the population genetics of the wild colony by comparing the DNA of specimens collected in 1977 with bees collected from the same forest in 2010. To conduct the study, they developed a new DNA analysis tool that works especially well for degraded DNA stored in museum samples.

(Source: Agriculture and Food News, Science-Daily. www.sciencedaily.com)



Photo Credit: Marek Walica / Fotolia

SAARC Countries agree to exchange Agri-Technologies and Germplasm

The governing board of the South Asian Association for Regional Cooperation (SAARC) met in Islamabad, Pakistan on August 12, 2015 to exchange new technologies, research findings, and germplasm to ensure food security in the region.

The meeting was held at the headquarters of the Pakistan Agricultural Research Council (PARC), presided over by PARC Chairman Dr. Iftikhar Ahmed and Director of Information, Ministry of Agriculture, Irrigation and Livestock, Afghanistan, Gh Rabani Haqiqatpal. "We need joint programs, and as members of SAARC we should try each others' technologies and research findings in other ecologies to help develop a food secure region," Haqiqatpal remarked.

The SAARC Governing Board, on the other hand, praised Pakistan for developing the National Agricultural Research Center (NARC), which they said was not only contributing to the agricultural development of Pakistan but could play an important role in regional agriculture development. Representatives from Bangladesh, Bhutan, and Maldives also attended the meeting.

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



Agri-tech & Communication

Asia Pacific animal genetics market to grow fastest globally

Increased animal protein consumption has led to the growth of the animal genetics market, which is predicted to grow at a CAGR of nearly nine per cent. The animal genetics market globally was estimated to cost US\$2.5bn in 2014, and will grow at a CAGR of nine per cent during the forecast period of 2014 to 2020, said a MarketsandMarkets report. Specifically, the Asia Pacific market is expected to grow the fastest, mainly due to increasing population, urbanization and demand for animal products. In this report, the animal genetics market is segmented by products, testing services, and region. Based on the type of product, the market is mainly segmented into live animals and genetic materials. The live animal segment is further segmented into canine, equine, poultry, porcine (pig) and bovine (cow).

On the other hand, the genetic material segment is segmented into semen and embryo. Animal genetics market is segmented into various testing services such as DNA sexing, DNA typing, genetic disease tests, and others in the report. The increase in animal protein consumption is being driven by rising adoption of advanced genetic technologies for larger-scale production and quality breeds. In addition, there is also growing awareness on veterinary genetic diseases and disorders, which has enabled farmers and animal rearers to make informed decisions about livestock.

(Source: Far Eastern Agriculture, www.fareasternagriculture.com)



Animal genetics have gained importance in Asia Pacific mainly due to the increase in demand for animal protein.
Photo Credit: JamesDeMers/Pixabay

New app to aid farmers with improving crop yield

The newly-developed Organic Fertilizer Assistant app has been launched, which finds the right combination of organic and mineral fertilizer for crops for farmers. The app has been developed by FERM O FEED, from The Netherlands, whose goal is to help the earth maintain its fertility by producing cradle-to-cradle products in the form of organic fertilizers. The app will enable farmers to fertilize their crops better, as it links with a range of databases and aggregates information on mineral fertilizers, organic fertilizers, soil types as well as weather reports. For better produce, improved soil conditions are a must and the Organic Fertilizer App will help farmers achieve the best possible soil condition for their crops based on the range of information it can access. They have to select the crop and the soil composition, following which the amount of vital crop nutrients needed for the desired yield will be given. The app calculates the exact requirement for each individual crop.

In addition, access to weather reports is useful as they determine the best moment to fertilize a field. Through the app, a community of like-minded farmers, who want to grow organically, can be created. On this platform, farmers can share their knowledge all over the world and discuss specific problems. The app makes it possible to give organic farming a boost all over the world.

(Source: Far Eastern Agriculture, www.fareasternagriculture.com)



Ferm O Feed's Organic Fertilizer App can be downloaded on the iPhone.
Photo Credit: Ferm O Feed



Believe it or not!



Catfish have over **27,000** taste buds. Humans have around 7,000 only.

Most brands of **lipstick** contain fish scales.



Starfish are not fish. Neither are **jellyfish**.



Seahorses are the only fish that swim upright.

Sharks are the only fish that have **eyelids**.



Calorie Chart

Fresh Food		
Food Type	Quantity	Calories (Kcals.)
Cornflakes	100 gm	382
Oats	100 gm	369
Corn	100 gm	341
Wheat	100 gm	314
Pasta	100 gm	376

Source: www.novafeel.com

Agro Tips

The need for efficient food production has never been greater. One in seven humans is undernourished. The increasing consumption of animal protein is generally considered at odds with Earth's ability to feed its people. So, the need for sustainable livestock is greatly felt. However, livestock are widely considered to be unsustainable. Here are few brief steps towards attaining a sustainable livestock:

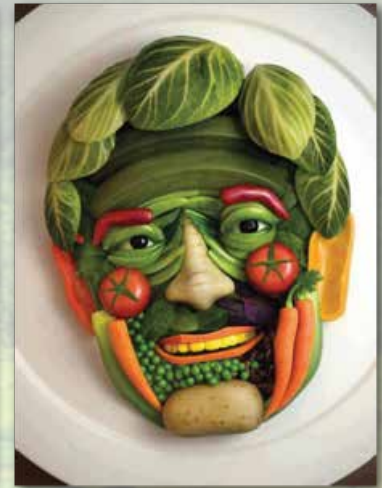
- We need to feed animals less human food like cereal grains.
- Raising regionally appropriate animals will help to reach the goals of sustainable livestock.
- As a universal rule, we need to keep animals healthy.
- Adopting smart supplements may require as the productivity of ruminant animals can often be boosted with supplements.
- We need to track costs and benefits while studying best practices to explore the multidisciplinary strategies for sustainable livestock.

Readers' Corner

Sharing is Caring!

Have you ever thought about fruits in an artistic way? Fruits are beautiful in their own way, but when they are carved or simply arranged in a different way, they look exquisite. Carving fruit is a wonderful talent as well as an art. Very often we come across these fruit art displays during different festivals and occasions. Every year, competitions are held to encourage budding artists to display their imaginations in the form of fruit art in different countries. One doesn't feel like eating these beautiful fruits as they are so magnificently arranged and carved.

Hope you will like the following collection of fruit art ideas.



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ACI Agribusiness
Creating Wealth for Farmers

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.