

BIO LIFE

Letter from Executive Director, Agribusiness

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The Tale of a Community Agri Curator

Md. Jahangir Alam Shah, a teacher of Rajshahi Government Collegiate School, has set an extraordinary example of enterprising traditional agricultural knowledge at the community level. In 2008, he established an agricultural tradition and knowledge hub named 'Shah Agricultural Information Library and Museum' at Kaligram village, Manda Upazilla at Naogaon. Over the time, it has now become a hub of knowledge about traditional agricultural equipments, books, information and traditional technology for not only local farmers but also researchers, scientists, students, and local as well as foreign tourists.

A graduate of Sociology, Md. Jahangir Alam Shah has interest in agriculture, livestock, and fishery from his early age. His journey began in 1995 as he first set up an incubator for chicken in Kaligram with the help of his brother-in-law Md. Khorshed Alam who is now an Additional Secretary at Labor and Manpower Ministry. Later he tried to grow mangoes and collected seedlings from Chapai Nawabganj with the help of Dr. Mainuddin Ahmed from Rajshahi Medical College. In his journey, he faced adverse challenges in getting necessary information on agricultural production and associated technology. It led him to initiate the agri library and museum. Mr. Alam's personal initiative and leadership in agri knowledge dissemination were recognized. He was awarded the Rotary International Gold Medal for agricultural contribution in 2011 and received it from the President of the People's Republic of Bangladesh.

Recently I had the opportunity to meet Mr. Alam and see his outstanding works as an invited guest of the celebration on World Veterinary Day 2015 at Shah Agricultural Center, Naogaon. I was really surprised and pleased to know his audacious vision of establishing the library and museum as an agricultural umbrella where any persons can get access and get the essence of all sequence of agriculture, livestock and fishery processes. I believe that more and more enterprising individuals like Md. Jahangir Alam Shah should emerge as community leaders in preserving indigenous knowledge and tradition as well as distributing modern agricultural information. Moreover, we have to appreciate, celebrate, support and uphold such community-level initiatives for preserving our agricultural tradition and advancing the knowledge base.

Dr. F H Ansarey
Executive Director
ACI Agribusiness



Contents

- 3 Biotech Corner
- 4 - 6 Innovation and New Products
- 7 - 12 Events and Activities
- 13 - 16 Agri-tech and Communication
- 17 - 18 Success Story
- 19 - 20 Readers' Corner

3

Enrichment of biodiversity leading to increase in productivity

It has long been established that a rich plant biodiversity leads to effective selection of varieties for better productivity.



4

Repromate Injection - for Estrus Synchronization and Induction of Parturition



On 15 June 2015, ACI Animal health launched Repromate Injection which is mainly used for estrus synchronization and induction of parturition in dairy cows.

7

Mango Fest & Musical Night held at ACI Center

On Friday, 12 June 2015, a 'Mango Festival and Musical Night' was organized by Rajshahi Zilla Samity, Dhaka at ACI Center



17

The Rice Magician, Story of Dr. M.A. Salam



15 breeds of rice during his tenure at the Bangladesh Rice Research Institute (BRRI) from 1977-2009; including most popularly 'Najishail' grain.

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Enrichment of biodiversity leading to increase in productivity

Prof. Lutfur Rahman

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

It has long been established that a rich plant biodiversity leads to effective selection of varieties for better productivity. Despite this knowledge, the coastal regions are facing biodiversity loss due to continuous cultivation of only a few crop varieties, e.g. local Aman rice, local Mung Bean and Kheshari. This is causing reduction in plant biodiversity, which also has adverse effect on health and food balance of people of the area causing lack of nutrition in the population's diet.

Studies have been conducted which show that the restoration of species rich in nutrition and increase in production even at homestead gardens increases the chance of biodiversity in one hand and the improvement of livelihood of HH on the other. Diverse crop production in an area improves soil fertility, balances market demands and the health of the people of the area. Soil fertility and seed limitations are the main causes affecting biodiversity. Soil fertility limits the number of plant species that can establish in an AEZ usually suitable for many crop species.

In order to achieve the targets of (i) improved maintenance of the biodiversity; (ii) increased productivity; and (iii) reduce erosion of Biodiversity;

while improving the income of the people of the area, the best sustainable program is to take the participation of the people at the rural level. Cultivate large numbers of crops of (i) staple food types; (ii) high nutritional use types; and (iii) high income generating types. The seed source for all types should be well supported starting from the public sectors institutions to private seed companies and dealers. This will encourage the farming groups to take all possible steps to increase diversity and get rid of the monotype conditions of production. Also include the agricultural product processors, market force and the financial institutions which will allow the farmers to use more and more diverse crop species with adequate seed supply from the companies/public agencies.

ACI has been able to test the model through a project in the south with 3200 farm families participating for two years. The results are spectacular. Now there are at least 23 crop species being cultivated and the communities are doing those by their own choice (after being properly trained and motivated). Thus, when the seed limitation is addressed, the biodiversity will be maintained and productivity will improve.



Innovations and New Products

Repromate Injection - for Estrus Synchronization and Induction of Parturition

On 15 June 2015, ACI Animal health launched Repromate Injection which is mainly used for estrus synchronization and induction of parturition in dairy cows. 1 ml Repromate contains Clopostenol Sodium, KW 263 mcg (As clopostenol 250 mcg). Cloprostenol sodium is a synthetic reproductive hormone which is analogue to prostaglandin structurally related to prostaglandin Fl α (PGF $_{2\alpha}$). Repromate causes functional and morphological regression of the corpus luteum (Luteolysis) in cattle.

In normal, nonpregnant cycling animals, this effect on the lifespan of the corpus luteum usually results in estrus 2 to 5 days after treatment. In animals with prolonged luteal function (pyometra, mummified fetus and luteal cysts), the induced luteolysis usually results in resolution of the condition and return to cyclicity. Pregnant animals may abort depending on the stage of gestation. Repromate is manufactured by UNIBIOTECH CO., LTD (Korea). It is available as 10 ml vial.



Tylo P.C Gold

Tylo-PC gold is a broad-spectrum antibiotic and indicated for the treatment and control of conditions caused by or associated with tylosin and thiamphenicol sensitive organisms in cattle, horse, calf, sheep, and goat. A large number of gram-positive, gram-negative bacteria and mycoplasma are sensitive to Tylo-PC gold. Maximum blood levels are attained rapidly which makes the product suitable for the treatment of acute infections in addition to the treatment of infections requiring sustained action. Tylo-PC gold contains Tylosin tartrate 57.5 mg, Thiamphenicol 200 mg, Prednisolone acetate 5 mg. Tylosin has a bacteriostatic effect on susceptible organisms caused by inhibition of protein synthesis through binding to the 50S subunit of the bacterial ribosome. Tylo-PC gold is manufactured by Eagle Vet.Tech Co., Ltd. (Korea). On 12 June 2015, ACI Animal Health launched it. The pack size for Tylo-PC gold is 100 ml vial.



Innovations and New Products

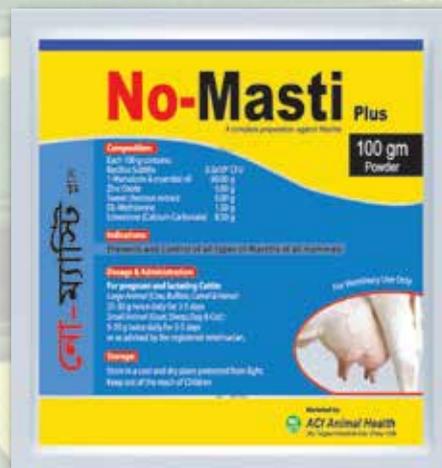
FRA® Udder Dry

On 15 June 2015, ACI Animal Health launched FRA® Udder dry which is a specific formula containing 1-monoglycerides of medium chain fatty acids, zinc, and micro-ingredients. All of these ingredients are coated in a fat matrix. Feeding this product to dairy cows improves udder health, may reduce mastitis incidence and lowers somatic cell count in milk. Each kg of FRA® Udder dry contains Nano-coated zinc 38 gm, Mono-, di- and triglycerides of lauric acid, salt of lauric acid, glycerin q. s. to 1000 gm. It is manufactured by FRAMELCO (Netherlands). FRA® Udder dry is available as 100 gm sachet.



No-Masti plus - a Complete Preparation against Mastitis

On 1 June 2015, ACI Animal Health launched No-Masti Plus, a complete preparation against Mastitis. Each 100 gm powder contain Bacillus Subtilis 3.2x106 CFU, 1-Monolin 60 gm, Nano Zinc Oxide 5 gm, Sweet chestnut extract 5 gm, DL-Methionine 1.50 gm, Calcium Carbonate 8.5 gm, Essential Oil q. s. to 100 gm. No-Masti Plus prevents and controls all types of Mastitis of all mammals. It is available in 100 gm sachet.



Innovations and New Products

PondToss™ - Protect Your Fish the Scientific Way



On 23 June 2015, ACI Animal Health launched PondToss™, which combines the best probiotic and water conditioning bacteria in one patented formula. PondToss™ creates improved water quality beneficial to health and growth. It produces small peptides that have a probiotic effect on fish, improving survival. PondToss™ creates a natural, beneficial Bio-Floc, while reducing ammonia, nitrite and nitrate. It digests organic solids and bottom sludge. It reduces shipping and refrigeration costs. PondToss™ contains freeze dried biological formula of natural microbes, enzymes, micronutrients and amino acids on a special carrier designed to improve microbial growth rates when applied to aquaculture fishponds. It is manufactured by Keeton Industries (USA). PondToss™ is available as 1 kg (100gm x 10 water soluble bags) pot.



ShrimpShield™ - The Scientific Way to Protect Your Investment



ShrimpShield™ is an easy to apply, highly concentrated formula of probiotic and organic waste digesting microbes developed for use in fresh, brackish and salt water rearing and aquaculture shrimp production. It is a direct apply product containing all the necessary nutrients, enzymes and carbon to rapidly increase the population of beneficial and desirable microbes to improve shrimp health, survival and growth. ShrimpShield™ work in three primary ways: increases immunity, health, and survival; improves water quality; and removes organic waste. All of the benefits of using ShrimpShield™ result in increased yield and ultimately more profit in aquaculture shrimp production. It contains freeze dried biological formula of natural microbes, enzymes, micronutrients and amino acids on a special carrier designed to improve microbial growth rates when applied to shrimp ponds. ShrimpShield™ is manufactured by Keeton Industries (USA). On 23 June 2015, ACI Animal Health launched it. ShrimpShield™ is available as 1 kg (100gm x 10 water soluble bags) pot.



Events and Activities

Mango Fest & Musical Night held at ACI Center

On Friday, 12 June 2015, a 'Mango Festival and Musical Night' was organized by Rajshahi Zilla Samity, Dhaka at ACI Center, Dhaka. The grand festivity took place to rejoice and celebrate the season of mangoes. Starting from 4 pm the festival continued till 8 pm. Dr. F. H. Ansarey, Executive Director of ACI Agribusiness greeted the august gathering and all the guests were served with a variety of delicious mangoes and other seasonal fruits. An awareness building campaign on marketing and purchasing safe mangoes also took place during the event. With a mesmerizing musical show, where famous musical band 'Joler Gaan' performed, the event concluded. ACI Agribusiness was the proud sponsor of the 'Mango Festival and Musical Night'.



A small gesture to bring smile to little faces by ACI

On 18 June 2015, M. Saifullah, Head of Strategy, ACI Agribusiness handed over the drop box of toys, donated by the employees of ACI Limited, to 'Toys R Urs', an initiative to provide toys to the underprivileged children of the society. On behalf of 'Toys R Urs', Mr. Fida Haq, Convener of the Ex-Cadets Forum, received the toys. He along with his social responsibility team initiated the project as many children of Bangladesh are deprived of the privilege of learning. Toys R Urs are providing that platform so that children can achieve necessary education utilizing toys.

M. Saifullah and other senior officials of ACI Limited were present during the handover session. Fida Haq along with his team members Tariqul Haque, Admin of ECF and Mustafa Jamal, Member of ECF shared how they got involved in the campaign of Toys R Urs and that the toys will be provided to the children individually and also be used at the educational institutions as a source of learning. They thanked the employees of ACI Limited for co-operatively donating the toys to 'Toys R Urs'.



Events and Activities

PDS Case Study: Does Field Day pull Sale of Products?

A recent case study by ACI Seed PDS team finds that there is a positive correlation between field days and the sale of associated products. As suggested by Mr. M A Mukit, Marketing Manager- Seed, a survey on the impact of field day activities of Chandpur has been undertaken on 8 June 2015 in this regard. A questionnaire format was developed for collecting survey data. The field day feedback team consisted of Dr. Mohammad Muhebbullah Ibne Hoque, Asst. PDS Manager, Mr. Alok Devnath, Sales Officer, Chandpur, Mr. Jahangir Ali, PDS Officer Chuadanga and Mr. Babul Hossain, PDS Officer, Faridpur.

Earlier, a field day on hybrid rice Sampad was arranged beside the field of demo farmer Md. Abu Taher, Shofibad, Kochua, Chandpur on 3 May 2015. The field day survey team visited the demo field, met

demo farmer, neighborhood farmers and dealer & retailer to find the impact of the field day, to discover the potentialities of ACI products in terms of acceptance to farmers and to see the trend of demand of hybrid rice Sampad by sale volume. Md. Abu Taher, the demo farmer cultivated Sampad in his 35 decimal lands and he got around 38 Kg paddy from 1 decimal where other farmers got around 28 Kg by cultivating BR 28 & BR 29. The Dealer Md. Foyez of M/S. Foyez Beej Vandar, Sachar Bazar, Kochua, Chandpur reported that he sold 20 Kg of Sampad hybrid rice this season. He expected that he will sell more than 200 Kg of Sampad next season. He deliberately informed that the field day program is successfully playing a vital role for popularizing ACI products, for demand generation and new market creation.



Visiting field where demo crop has cultivated



Interviewing Dealer

Smiling Faces of 'Green Soft' Villages at Bogra

Cultivation of Okra cv. Green Soft has brought smiles on the faces of the farmers in different villages under the Simabari Union of Sherpur in Bogra as they are achieving high yield and handsome profit through its cultivation in this season. Demonstrations, farmers' meeting and field days activities, done in last three years by ACI field forces, helped most of the farmers of this union to visualize the excellent performances of okra variety 'Green Soft' in terms of yield, fruit quality, and virus tolerance. Alamgir Hossain (50), a farmer of Betkhor village under Semabari union said that he brought one bigha of land under cultivation of Green Soft this season and harvesting 10 mounds every week and earned Tk 25,000 so far. He is hopeful to earn more dividends during the remaining part of the season.

Ingil Sharif (40) another farmer of this village said, "Pods of Green Soft can be snapped easily or punctured on slight pressure, so it takes lower labor cost to harvest". Md Saiful Islam, ASM, Bogra added, "Many farmers of this village including Niscintapur are growing Green Soft variety and the villages will be 'Green Soft Villages' by next year". Mr. Md Hasanul Haque, ACI Agribusiness Advisor; Dr MA Salam, Chief Scientific Officer of ASRBC; Dr Md Akter Hossain, PDS Manager; Md Saiful Islam, ASM; Md Zillur Rahman, PDS Officer, Bogra visited Green Soft field of Betkhor on 21 June 2015 and found many happy farmers of Green Soft as they have an excellent output of the variety.



Events and Activities

Seed Field Days motivated 886 Farmers in June

In June 2015, a total of 20 field days were organized by ACI Seed on 13 varieties of 8 different Crops. These varieties include Papiya in Bitter gourd, Moina, Tikki in Chili, MS-888, Profit, MZ-001 and 3033 in Maize, Komol in Okra, Durlov in Ridge Gourd etc. These field days were held in 9 different districts. The districts are Bogra, Bagherhat, Chittagong, Comilla, Gazipur, Jessore, Magura, Rajshahi, Thakurgaon.

In total, near about 1089 farmers, as well as dealers, retailers, and other stakeholders, were present in these field days. Among them, about 886 farmers are highly encouraged and motivated to cultivate these varieties. These field days are playing very effective role in the massive promotion of these varieties.



Field day-MZ-001, Rajshahi (11 June 2015)



Field day-Papiya, Chittagong (17 June 2015)

Evaluation of PDS activities of ACI Seed Business

What development interventions make a difference? Is the PDS unit having the intended results? What can be done differently to better meet goals and objectives of PDS activities? To answer these questions a highly experienced evaluation team, consisting of Mr. Md Hasanul Haque, ACI Agribusiness Advisor; Dr. M A Salam, Chief Scientific Officer of ASRBC and an R&D breeder, was proposed by Dr. F H Ansarey,

Executive Director, ACI Agribusiness. The team has already started evaluating PDS activities from 21 June 2015 and will evaluate all PDS stations gradually. By this time, the team visited 3 PDS stations, talked with demo farmers and neighborhood farmers, farmers cooperatives in-work with PDS, seed dealers in the districts of Sherajgonj, Bogra, Rangpur, Lalmonirhat and Thakurgaon. The evaluation is in progress.



438 Effective Demonstrations by ACI Seed in June 2015

In June 2015, a total of 438 effective demonstrations of ACI Seed have taken place in 13 territories. There are almost 52 varieties of 17 different Crops. These includes varieties like Super King and Super Queen in Ash Gourd, Moina and Rownok in Bottle Gourd, Beguni in Brinjal, Maradona in Cauliflower, Sweet Diamond, White Proud and Suchona in Sponge Gourd, Summer King in Tomato etc. These demonstrations are located in 34 different districts. The districts are Brammon Baria, Bagerhat, Barisal, Bogra, Bhola, Borguna, Chandpur, Chittagong, Chuadanga, Comilla, Dinajpur, Faridpur, Gaibandha, Gazipur, Gopalganj, Jessore, Jhinadah, Khulna, Kurigram, Lalmonirhat, Magura, Meherpur, Narail, Narsingdi, Naraygonj, Natore, Pabna, Panchagarh, Patuakhali, Rajbari, Rajshahi, Rangpur, Sirajgonj and Thakurgaon.

Farmers, dealers, retailers and other stakeholders of these areas, are highly encouraged and motivated to cultivate and trade with these varieties. Such demonstrations are playing very effective role in the massive promotion of these varieties all over the country.



Events and Activities

Green Expedition at National Tree Fair 2015

ACI Fertilizer has participated in the National Tree Fair of Bangladesh 2015 which took place from 6 June to 5 July at International Trade Fair Field, Sher-e-Bangla Nagar, Agargaon adjacent to Bangabandhu International Conference Centre, Dhaka. Like last 20 years, this month-long Tree Fair is organized by Government's Forest Department under the supervision of Ministry of Environment and Forest. This year the slogan of fair was-

“পাহাড় সমতল উপকূলে গাছ লাগাই সবাই মিলে”

The tree fair was open for all from 10 am to 8 pm and entry was absolutely free. There were total 86 stalls in this fair, mostly occupied by renowned nurseries of Bangladesh. ACI was one of the 8 participating organizations alongside the nurseries. ACI Fertilizer aims to serve for supplementing plantation and give balanced nutrition to the plants along with a noble concept of healthy Bangladesh.

At stall no. 56, ACI Fertilizer team helped and gave suggestions to the visitors regarding tree health with the support of experts.

Every year this fair encourages mass people besides the nature lovers to plant more trees and build a green environment for the nation. Hopefully, this fair will continue to teach and influence the mass and contribute more to the society. ACI Fertilizer will always remain alongside in building healthy crops for a healthier life.



Regional Agri-Tech Fair 2015 held at Comilla

Mr. M Anis Ud Dowla, Chairman of ACI Limited along with Dr. F. H. Ansarey Executive Director of ACI Agribusiness, and Director General of BRRRI attended a 3 day-long Regional Agri-Tech Fair 2015 at Hatkhola High School located in Doudkandi, Comilla. The fair took place from 13 to 15 June 2015 and promoted sustainable agricultural technology for boosting farming outputs to feed the gradually increasing population of the country. The main purpose of the fair was to popularize various modern and affordable technologies used in agriculture. Various indigenous machines and tools used in fields and post-harvest processing of crops were displayed during the fair.

Dr. F. H. Ansarey, Executive Director of ACI Agribusiness emphasized on sustainable agriculture while sharing his opinions and plans. In his speech, he also highlighted existing and upcoming opportunities which stakeholders should take under consideration.

ACI Fertilizer participated actively with other divisions of ACI Agribusiness to demonstrate their quality products and nutrients solution of crops to the farmers and traders. The main focus of ACI Fertilizer was to promote the concept of balanced fertilization and its impact on crops, human being and animal body. The response of the stakeholders was very enthusiastic which would help them to drive progressively in near future.



Events and Activities

Agri-machineries Exhibition extends clientele of ACI Motors

From 8 to 10 June 2015, ACI Motors successfully demonstrated its Agri-machineries at "Krishi Projukti Mela" which took place at Comilla Town Hall, Comilla. Honorable local Member of Parliament Mr. A.K.M. Bahauddin along with other guests and visitors visited the stall of ACI Motors during the fair. Spot orders from clients including Comilla City Corporation were also made at the fair.



ACI Motors: Subsidy & Gift Promo ended

Two of ACI Motors' promotional offers ended on 30 June 2015. As part of the promotions, customers could avail government subsidy up to 40,000 Taka while purchasing ACI Power tillers and win attractive gifts, starting from 10 May 2015. On the other hand, customers were gifted with an attractive towel or wall clock with every purchase of ACI diesel engines. The offer for diesel engines was valid from 1 April to 30 June 2015.



Seamless Interaction: ACI Motors meets Local Repairers

ACI Motors arranged two open discussions and training sessions with motor repairers (mechanics) in June 2015. The first one took place on 6 June 2015 at Nojipur, Potnitala, Naogaon with around 80 participants. The last one was held at Mymensingh on 11 June 2015 where around 30 people participated. ACI Motors arranges such open discussions and training sessions with the motor repairers' community on a regular basis at different parts of the country. These events are the place where, repairers can freely ask questions, give suggestions and provide all types of feedback. Such interaction with key stakeholders has been vital for ACI Motors.



Events and Activities

ACI and Katalyst partnered to promote Safe Fish Species

On 18 June 2015, a partnership-grant contract was signed between ACI Limited & Katalyst on 'Establishment and Promotion of an Efficient Distribution Channel for Safe Fish Species' at ACI Center, Dhaka. Dr F H Ansarey, ED Agribusiness; M.Saifullah, Head of Strategy, ACI Agribusiness; Md.Mustafizur Rahman Khan, Marketing Manager, ACI Cropex; and Asef Ibne Shamim, Marketing Executive, ACI Cropex were present on behalf of ACI during the contract signing. On the other hand, GB Banjara, Head of Sectors, Katalyst and Markus Ehmann, General Manager, Katalyst were also present in the event.



Season's Branded Mango from ACI Cropex launched

ACI Cropex launched its branded mango for the customers from 1 June 2015. Like last year, ACI Cropex mangoes are absolutely free from formalin and harmful chemicals. ACI Cropex is committed to maintain quality standards. So, ACI Cropex can be your ultimate choice for Mango in this mango season.



Agri-tech & Communication

Dual internal clocks keep plant defenses on schedule

A new study from Duke University shows that time management is not for busy people only -- it's for plants, too. The study shows how two biological clocks work together to help plants deal with intermittent demands such as infections, while maintaining an already-packed daily schedule of activities like growth. Plant defense and other daily rhythms are thought to be driven by "morning genes" and "evening genes." Proteins made by the morning genes suppress the evening genes at the beginning of the day, but as the proteins start to build up within the cell they eventually turn themselves off. The subsequent drop in morning protein levels near the end of the day in turn activates the "evening" genes, creating a continuous 24-hour loop.

The researchers treated Arabidopsis plants with salicylic acid, to disrupt

the normal daily fluctuation of reactive oxygen molecules in the plants' cells. They were surprised to find that the plants' circadian clock genes only made more proteins with the same regular rhythm. Using a mathematical model to explain the phenomenon, they found that rather than run fast or slow, plants treated with salicylic acid activated both their "morning" clock genes and their "evening" clock genes more strongly. The researchers also identified a gene called NPR1 that links the two clocks, allowing them to work together. NPR1 senses changes in the "tick-tock" of the plants' reactive oxygen species clock, and responds by turning up both the "morning" and the "evening" genes in the other clock.

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



Microbe mobilizes 'iron shield' to block arsenic uptake in rice

University of Delaware researchers have discovered a soil microbe that mobilizes an "iron shield" to block the uptake of toxic arsenic in rice. Arsenic occurs naturally in rocks and soils, air and water, plants and animals. It's used in a variety of industrial products and practices, from wood preservatives, pesticides and fertilizers, to copper smelting. Chronic exposure to arsenic has been linked to cancer, heart disease and diabetes.

The UD finding gives hope that a natural, low-cost solution -- a probiotic for rice plants -- may be in sight to protect this global food source from accumulating harmful levels of one of the deadliest poisons on the planet. Rice currently is a staple in the diet of more than half the world's population. Harsh Bais, associate professor of plant and soil sciences, led the UD team that conducted the study, which is reported in the international journal *Planta*. The soil microbe the team identified is named "EA106" for UD alumna Emily Alff, who isolated the strain when she was a graduate student in Bais' lab. The microbe was found among the roots of a North American variety of rice grown commercially in California. It belongs to a group of gram-negative, rod-shaped bacteria called the *Pantoea*, which form yellowish mucus-like colonies.

Because rice is grown underwater -- often in water contaminated with arsenic in such hot spots as Bangladesh, India and China -- it takes in 10 times more arsenic than do other cereal grains, such as wheat and oats.

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



Photo Credit: University of Delaware

Agri-tech & Communication

Wild tobacco plant can be a key in attaining food security

Dr. Stephen Wylie and his colleagues from Murdoch University identified a plant that can be essential in attaining food security. In their study, the researchers were able to obtain the RDR1 gene from a wild tobacco plant (*Nicotiana benthamiana*) in Western Australia. RDR1 gene controls the viral response of *N. benthamiana* strains in different viral infections. Functional RDR1 that is present in wild strains of *N. benthamiana* shows milder symptoms upon viral infections, strains lacking it due to mutation shows severe viral symptoms. This finding indicates that the plant does not only respond to viruses, but also possesses genetic abnormalities.

This discovery can be applied to crops such as potato, tomato, capsicum, and eggplant. There are other roles that RDR1 gene can control due to its involvement in different developmental processes. Furthermore, *N. benthamiana* plants can thrive in wide range of dry, hot, and salt-laden environments indicating that there are other valuable genes present in the plant that can be useful in improving crops.

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



Gene that controls soybean seed permeability, calcium content, identified

Purdue University researchers have pinpointed the gene that controls whether soybean seed coats are hard or permeable, a finding that could be used to develop better varieties for southern and tropical regions, enrich the crop's genetic diversity and boost the nutritional value of soybeans. Jianxin Ma (Jen-SHIN' Ma), associate professor of agronomy, and fellow researchers found that a mutation in the gene *GmHs1-1* causes the tough seed coats of wild soybeans to become permeable. Farmers selected that trait about 5,000 years ago in a key step to domesticating soybeans from their hard-seeded relative *Glycine soja*.

The gene could be modified to produce improved varieties for growing regions in which seed permeability can be a handicap, Ma said. *GmHs1-1* is also associated with the calcium content of soybeans, offering a genetic target for enhancing the nutrition of soy food products. Understanding the mechanism that determines seed permeability could also give researchers better access to the largely untapped genetic diversity of wild soybeans to enrich cultivated varieties, whose lack of genetic richness has curbed improvements in yields.

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

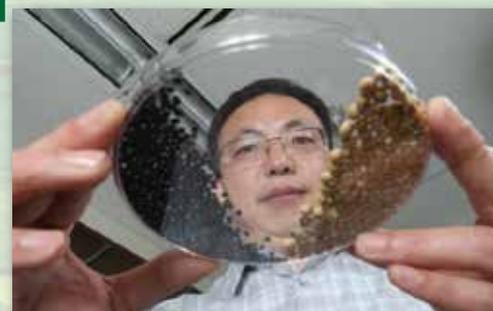


Photo Agronomist Jianxin Ma holds a dish of seeds from cultivated soybeans (right) and from their wild, hard-coated progenitors (left). Credit: Purdue Agricultural Communication / Tom Campbell

Agri-tech & Communication

FAO launches digital platform on family farming

Recognising the contributions of family farmers to food security and poverty eradication worldwide, FAO recently launched a digital platform that aims to become a 'one-stop shop' for information, data and legislation on the sector that produces 80 per cent of the world's food.

"Family farmers feed our communities and take care of our earth — they are crucial allies in the fight against hunger and rural poverty," FAO director-general José Graziano da Silva said. By gathering digitised information on family farming from all over the world including public programmes, national and regional

legislation, up-to-date statistics, case studies and academic research, the new Family Farming Knowledge Platform will allow governments to build stronger policies in support of family farmers and help policy dialogue with family farmers' organisations. The platform is likely to benefit from the collaboration of partnerships with diverse international entities, including governments, networks of family farmers, UN agencies as well as NGOs.

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



Photo Credit: Wanphen Chawarung/Shutterstock

Disease-detecting poultry biochip launched in Singapore

A poultry biochip has been launched that can detect nine major diseases using a single sample applied to the portable, disposable chip. Scientists from the Agri-Food and Veterinary Authority of Singapore (AVA) and Veredus Laboratories, supplier of molecular diagnostic tools, have been working on the chip since 2010. The biochip is known as 'VereVet', and was described by the developers in a joint statement as a portable Lab-on-Chip application that can detect, differentiate and identify nine major poultry infectious disease agents.

Unlike the conventional method of

testing, which requires different samples for different tests, the portable Lab-on-Chip application is able to detect multiple infectious disease agents affecting poultry using only one sample. These disease agents include Newcastle Disease Virus, Salmonella pullorum, Salmonella enteritidis, campylobacter and avian influenza virus. The chip is able to detect all avian influenza virus types, but places special emphasis on differentiating H5, H7 and H9.

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



Agri-tech & Communication

University of the Philippines explores faster Salmonella detection in meat through biotech

The University of the Philippines (UP) Diliman, with support from the Department of Agriculture-Biotechnology Program (DA-Biotech), is conducting a study to improve methods of detecting Salmonella in raw meat and meat products by looking at the genetic blueprints of the organism and analyzing the mechanism for its transmission and proliferation. It also aims to find the prevalence of Salmonella species in slaughtered swine and other livestock and poultry—both in raw meat and meat products—in wet markets in Metro Manila. The Salmonella species will also be classified according to what antigens they have.

Dr. Windell Rivera, a Professor of Microbiology at the Institute of Biology in UP Diliman, explains that with a developed protocol and Polymerase Chain Reaction (PCR) can allow rapid detection of organism and its sources. He added that the organism can be further characterized, outbreaks can be controlled, and mechanisms of transmission can be identified. He also said that faster and better detection of Salmonella would mean better control strategies and policies, and can ultimately help ensure safer meat and meat products in the agricultural and livestock industry in the Philippines.

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



Shrimp shells yield solar power, reveals research

Researchers at Queen Mary University of London's School of Engineering and Materials Science have extracted a product from shrimp cells, which was applied on zinc-oxide nano rods to make solar cells. Shrimp is no longer just food; the chemicals found in the shells of shrimp and other crustaceans have been used to create electricity-generating solar cells.

Now, more than just fishing them for a delicious dish, shrimp are being sought for the materials chitin and chitosan found in their shells. These are abundant and significantly cheaper to produce than expensive metals such as ruthenium, which is similar to platinum, that are currently used in making nano-structured solar-cells. Currently, the efficiency of solar cells made with these biomass-derived materials is low but if it can be improved they could be placed in everything from wearable chargers for tablets, phones and smartwatches, to semi-transparent films over windows. "This could be a great new way to make these versatile, quick and easy-to-produce solar cells from readily available, sustainable materials," said Joe Briscoe, one of the researchers on the project. "Once we have improved their efficiency they could be used anywhere that solar cells are used now, particularly to charge the kinds of devices people carry with them every day," he added.

Source: Far Eastern Agriculture, www.fareasternagriculture.com



Photo Credit: Rafael OrtegaDaz/WikimediaCommons

Success Story

The Rice Magician

Story of Dr. M.A. Salam, Chief Rice Breeding Consultant, ASRBC



Dr. M. A. Salam from Naogaon, born in 1953 has invented more than 15 breeds of rice during his tenure at the Bangladesh Rice Research Institute (BRRI) from 1977-2009; including most popularly 'Najishail' grain. Bangladesh has three cropping seasons- from April to July 'Aus', July to November 'Aman' and from December to March 'Boro'. During the heavy monsoon season from Mid June to September, the whole country suffers floods and water logged areas. Farmers, especially from the north-eastern part, face flash flood submerging the crop fields weeks before the harvest which damages the yield.

Dr. Salam's first work was inventing water submergence tolerant rice breed for the north-eastern farmers. This variety could survive up to 15 days surrounded by the water. During his career of 30 years, he has developed submergence tolerant rice BR-17, BR-18, BR-19, high yielding 'Aman' rice-BRRI 30, BRRI 31, Short maturity 'Aman' rice-BRRI 33, BRRI-39; for the southern farmers salt

tolerant rice variety- BRRI-40 and BRRI-41, and scented rice grain variety BRRI 37, BRRI 38 and 'Banglamoti' BRRI-50. Dr. Salam was also an Advisor of the Agriculture and Food Security Program. He is currently engaged with the Advanced Seed Research & Biotech Centre (ASRBC) of ACI Limited as the Chief Rice Breeding Consultant.

"I wanted to work with rice variety because it is the main crop of our country. I have seen how a bad yield affects the farmers as well as the food market", said Dr. Salam. "I work with 'inbred' varieties, one of the distinctions of inbred from hybrids is farmers can collect and conserve rice seeds from inbred varieties. Presently I'm working to develop a short maturing rice variety with thin grains. Usually, short maturing variety grains are stocky."

After completing the SSC, Dr. Salam entered Bangladesh Agricultural University in Mymensingh. He was a brilliant student and through hard work he secured 97% marks in the final exam. He completed his BSS and MSS with distinction and joined Bangladesh Rice Research Institute in 1977. In 1985, Dr. Salam received a scholarship for his Ph. D in International Rice Research Institute, Philippines. He had then already invented the rice variety BR-17, BR-18, BR-19 and received the skilled worker award from BRRI for his contribution.

A range of rice varieties shows photoperiod sensitivity which got attention from Dr. Salam. Photo period sensitivity is the responsiveness of plants with the length of the day. The blooming of the photoperiod sensitive plants are triggered by changed length of daylight. He chose this as his thesis topic. With his supervisor Dr. David J. Mackill, Dr. Salam succeeded to identify a 'marker' for 'Hd-1' plants and features which enabled him to invent a range of rice varieties from 'Shail' category which are photoperiod insensitive.

In 2006, Dr. Salam received the prestigious 'Sinedhira Rice Research Award' for his outstanding contribution in agricultural sector. This year he received Food & Agriculture Award 2011 in recognition of his contribution to rice variety development by Campaign for Sustainable Rural Livelihoods (CSRL).

Dr. Salam is the pioneer in using farmer participatory breeding in evaluating breeding lines for unfavorable environment which advanced the development of saline and stagnant water condition adaptive varieties. He worked to develop arsenic-tolerant and iron-rich rice varieties as well as other varieties. Dr. M.A. Salam is one of the revolutionaries who has made it possible to achieve food security in Bangladesh with a reality of arable land declining at a 1% and population increasing at more than 3% rate.



Success Story

Nuru Mia & 'Maradona'

A farmer from Comilla is creating wealth from Summer Cauliflower - Maradona



Happy farmer Nuru Mia in his Summer Cauliflower – Maradona field

A farmer of Panchthubi Union of Adarsha Sadar Upazila, Comilla has recently induced enthusiasm among many other farmers in the region to grow summer cauliflower by making a hefty profit from last year's production. Nuru Mia (40), a demo farmer of ACI Seed, cultivated 1150 seedling of the summer hybrid cauliflower 'Maradona' on 7.0 decimals of land in his village Jaluapara and got net profit of around Tk. 31,000 in 2014.

This smart farmer, spurred by the grand success, has brought 3 bighas of land under 'Maradona' cultivation this year. He has adopted a series of transplanting starting from Mid April this year and four set of transplanting at four different dates were found in his lands. Now he has started harvesting and marketing. The farmer is expected to continue harvesting and marketing till Mid August and earn Tk 2.5 lac from it. Nuru Mia said, "I found both seedling and crop very tolerant to heat and rainfall; and harvested 550g curd (flower) at 50 days after transplanting". "Although the curd is light yellow, but its compactness and dome shaped features are very helpful for marketing at good a price", he added.

On 8 May 2015, ACI field force arranged a field day where about 300 participating farmers, nurserymen, retailers, dealers, DAE & ACI officials analyzed the performance of 'Maradona' and they opined that it is a very profitable variety for summer cultivation and marketing. ACI Seed dealer Mr. Saddam Hossain of Cashi Beej Bhandar at Comilla has experienced about 800% growth in 2015 - this info alone can give an idea on how successfully Nuru Mia induced interest among other local farmers for 'Maradona'.



A Field Day on the farm of Nuru Mia

At the same time, due to the continuous efforts of the field forces through regular demonstrations, farmers meeting and field days, the success of cultivating 'Maradona' has spread over some other villages including Subarnapur, Shahpur, Shawalpur of Panchthubi Union of Sadar Upazila, Comilla. And this indicates that promotion of such new variety will help creating wealth for the farmers and economic emancipation and nutritional food security of the country.



Believe it or not!



Mango seed is that it is used to make **soap** due to its high **stearic acid** content.



An average sized mango can contain up to **100%** of your daily **vitamin C**, **35%** of your daily **vitamin A**, and **40%** of your daily **fiber** requirements.



A mango tree can grow as tall as **100 feet!**

Some of the mango trees can bear fruits even after **300 years!**

Mangoes were first grown in India over **5,000 years** ago.



Calorie Chart

Fresh Fruits		
Food Type	Quantity	Calories (Kcals.)
Mango	100 gm	60
Jackfruit	100 gm	95
Lychee	100 gm	66
Blackberries	100 gm	43
Dates	100 gm	282

Source: USDA & Google

Agro Tips

Any plant that grows where you don't want it can be considered a weed. Besides taking up valuable space in your garden, weeds compete with other plants for nutrients, water and light. So you need to keep your garden free from weeds on a regular basis. To make the job as easy as possible, here are some useful tips:

1. Pull up weeds before they go to seed and self-spread around the garden.
2. Try to get the whole weed including the root
3. Younger weeds are easier to pull because they haven't established a strong root system
4. Wet the ground with a drip irrigation hose before weeding and your job will be easier - Better still, water after it has rained
5. For weeds with shallow invasive root systems, try scraping below the surface of the soil to drag out as much of the root system as possible.
6. Wear safety goggles and sneakers if you are scraping with a sharp tool to avoid an accident.

Readers' Corner

Sharing is Caring!

Peeling mangoes is surely a time-consuming task. Some of us may also find it as a difficult one although the reward is always worth it. If you suddenly need to peel a number of mangoes quickly, try this simple yet useful technique. All you need is a strong glass and a bit of coordination. This might be one of the cleanest ways of indulging in a mango!

Just follow these 3 simple steps:



Step 1
Cut a Mango into three pieces with skin



Step 2
Scoop the Fruit with the Glass



Step 3
Enjoy!

ACI Agribusiness

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