BIOLIFE

Letter from the Executive Director, Agribusinesses

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Molecular Technologies in Plant Breeding: A New Era to Begin

Over the years, the advancement of technology in the agriculture has been immense. One of the huge developments can easily be identified as the application of molecular technology in plant breeding. Globally, the impact of biotechnology in agriculture is massive; for example canola in North America, maize and soybean crops in Brazil and Argentina, Golden and Super rice in China.

Plant breeding is the technology of changing the traits of plants in order to produce desired characteristics. Through molecular intervention, the preferred yield, nutrition, and resilience of crops can be developed in a much shorter time through genetic modification.

In traditional plant breeding, plants are crossbred to introduce genes from one variety into another of a different genetic background. Problems with the traditional breeding are that it is an extremely long procedure and the risk of development of unfavorable crops can be high.

Plant biotechnology is far more precise and selective than traditional crossbreeding in producing desired agronomic traits. It has enabled improved farming techniques and crop production around the world by increasing plants' resistance to diseases and pests; reducing pesticide applications; maintaining and improving crop yields.

In individual levels, public R&D institutions and universities have recently started developing lab and manpower facilities to generate plant varieties suitable for production under both saline and drought conditions. However, there have been no tangible achievements. Some challenges hindering development include the regulatory issues of the government and the delay in transfer of biotech products from lab to field, for use by the farming community.

A holistic approach must be taken where government and private sector will work together. There should be access to development fund for R&D infrastructure, capacity building of scientists, professors and students. Appropriate protection laws for intellectual property rights, one window system and policies facilitating release of new varieties are some of the major requirements of the private sectors from the government. The private sector should be facilitated with adequate financial provisions with a huge percentage if not 100% tax holiday for a specific period. Accordingly, the private sector should work with full sincerity, investing required skills and labors in researches. They should work jointly with foreign researchers and scientists as well in order to bring in their tested technologies for the benefit of the country.

In order to contribute to the society through molecular technology, ACI Agribusinesses has already established a molecular biotech research center, the Advanced Seed Research and Biotech Center (ASRBC). Under this center, ACI Agribusinesses has started research on molecular breeding through Public-Private Partnership which is also encouraged by the Government of Bangladesh.

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ACI Fertilizer Launches Bioferti-Potato Special

In October 2013, ACI Fertilizer launched “Bioferti – Potato Special” under the product group Bioferti with new a labeling considering the opportunity of penetrating Bioferti more in potato market. The cultivated land of potato in Bangladesh is 4.80 lac hectares. Most of the farmers cultivate the potato commercially and they have a practice to use new technology products, especially different types of liquid fertilizer, humus and PGR. Bioferti is a natural humus based product (97% liquid humus). It is a matrix of plant nutrients, amino acids, carbohydrates and PGR necessary for overall plant health, growth, nutrition and quality. There are many different kinds of liquid fertilizers and humus in the market but ACI Fertilizer is the only company to focus on potato for this type of products. This would help farmers who grow potatoes in their fields largely because they will get a complete package of all the required nutrients in one pack. Already by now, the product has received positive feedbacks from the farmers and traders are giving positive feedback. ACI Fertilizer expects that the response of the product will be increased rapidly in coming months.

ACI Animal Health Introduces Four New Products

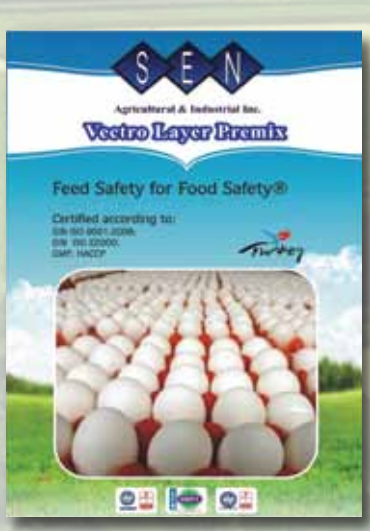
ACI Animal Health, known for its constant endeavor in innovating new solutions for poultry, livestock and fisheries owners, have recently launched four new products, two for poultry use and the other two for dairy use.

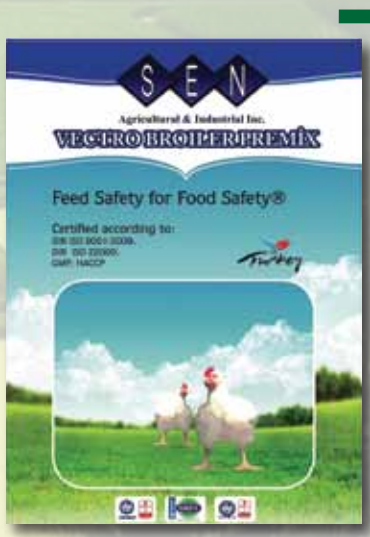
Vitapoultry, water soluble feed additive, is a well-balanced combination of essential Vitamins, Minerals, Glucose and Amino acids. Directly imported from Eagle Vet. Tech Co., Ltd., Korea, Vitapoultry has been launched with an attractive packaging under the pack size of 100 gram. It is used to prevent stress, deficiency of Vitamins, Minerals and Amino acids of Poultry and increase body weight of broiler & production of layer.

A new pack size of Betamune, 100 ml, was launched in September. Already existing in pack sizes of 50ml and 250ml in the market, Betamune is directly imported from Kanzy Medipharm Inc, Canada. Betamune, is an effective immune stimulant which act to stimulate both specific and non-specific immune response. Betamune is capable of boosting the bird’s immune system in such a way that it compensates or prevents the immunosuppressive effects.

Amino Plus is an animal feed premix which is enriched with amino acids. It contains 51.15% protein, 1.30% fat and 5.90% fiber. It is a performance enhancer and alternative protein source for Poultry. In case of Dairy, it increases milk production up-to 10%. It is available in the pack size of 25kg and the small 1kg pack will be available very soon.

Bovi Plus, is a powder for oral use. It is a regulator of the biochemical functions of the rumen in ruminants. This product is manufacturing in ACI Factory, at Narayongonj providing strict manufacturing compliance. This is available at 125g. It is highly effective product for gastric and metabolic disorders in Cattle, Sheep and Goat.





Outstanding Performance of Hybrid Rice Sampad Raises Hope

ACI Seed's Hybrid Rice Sampad has performed outstandingly in the late Boro season this year at the northern part of Bangladesh, i.e. Serajgonj and Rangpur including other parts of the country. Sampad has given a stupendous 25-30% higher yield compared to the popular BRRI breed AUS/Aman varieties. Hybrid rice cultivation in the late Boro season is getting popular due its lower cost of production and higher return compared to Boro season. Moreover, minimum 60 bundle/decimal of rice straw can be sold at the rate of tk.2/ bundle in Aman season which ensured additional benefits of farmers.

In order to transmit the message of how Sampad can bring about a massive crop yield and the other features to farmers, ACI Seed has arranged five field days on Sampad at Serajgonj and Rangpur. Farmers were highly motivated to cultivate ACI Sampad because it can be harvested 15-20 days earlier compared to the famous other AUS/Aman varieties and also because of its yield potentiality. Due to the earliness farmers can easily cultivate mustard, potato and other crops in early season and ensured better return by maximum utilization of their lands.

Creating New Record: ACI Animal Health Crosses Tk. 100 Crore Sales Milestone

ACI Animal Health hits the remarkable milestone of Tk. 100 crore in sales within the period of January to Ocotber 2013. This, so far, has been the biggest sales ever achieved by the business which has been relentlessly providing poultry, fisheries and livestock farm owners with premium quality nutrient vet, preventives, vaccines and other medicines. The team of ACI Animal Health along with all the other business units of ACI Agribusiness celebrated the glorious success. Along with regular products, ACI Animal Health constantly introduces innovative solutions in the market.

This tremendous success has given ACI Animal Health the success and confidence of setting the target to become the market leader in its industry and provide the farm owners with the best possible solutions at an affordable price. For this, the business continuously has to put effort on innovating new products and training field forces to develop product and selling knowledge.

Inspiring Retailers: ACI Seed Arranges Motivational Programs on Hybrid Rice Seed

In October 2013, in order to uplift the spirits of retailers, ACI Seed arranged eight elaborative retailer programs at different areas of Gaibandha, Kurigram and Rangpur. Around 250 retailers were present during these meetings who shared their experiences with Hybrid Rice Seeds. Through these programs, the retailers expressed their appreciation on the ACI Seed's quality and performances. The retailers were highly motivated to sell ACI hybrid rice this season and hence they have given specific sale forecasts to ACI Seed showing their commitment to sell ACI Hybrid Rice in this season. ACI Seed team including the high officials attended the meetings and explained about performances of ACI Hybrid Rice Seed. The business is expecting a significant growth in hybrid rice sale at Rangpur area.

Boron's Role in Improving Mustard Production

Boron is an important micro nutrient for all crops. Boron in plants aids in cell wall development, cell division, fruit and seed formation, sugar transportation and hormone development. It increases the flower production and retention. Boron is essential for higher yields and quality of crops. Lack of Boron affects vegetative and reproductive growth of plants resulting in inhibition of cell expansion and reduced fertility. Due to Boron deficiency, the production of Mustard can be hampered up to 70%. Therefore, farmers must be well educated about Boron and its significance in crop production. ACI Fertilizer is promoting Boron in mustard cultivated areas, like – Bogra, Sirajgonj, Pabna, Manikgonj, Tangail, Jamalpur & Rangpur, Kurigram & Dinajpur through famers training program, result demonstration with the help of some NGO's, like – M4C, NDP, SKS and as such.

Motivating Dealers and Customers: ACI Motors Sets a New Level

ACI Motors has arranged a motivational Trip to Thailand with the business dealers and senior and mid-level field forces under seasonal sales program from 19th to 23rd of October. To make the trip more worthy and aspirational; high officials of Zhejiang Shifeng Machinery Co. Ltd (Power Tiller principals) Mr. Michele, GM; Ms. Jessica & Ms. Jessica, SM joined with ACI Motors team. A meeting was conducted in Pattaya where Power Tiller principals described their new products and future business guidelines to ACI Motors team.

The principals appreciated the performances of the ACI Motors sales team and customers and how ACI Motors motivates its customers and employees. ACI Motors believe that it is required to award people for their admirable performances; this way both the employees and customers find inspiration in working harder for the company. It was a four day trip included a river cruise grand dinner, tour to Safari World and Gems Gallery and an experience of the traditional Alcazar Show in Pattaya. Along with the soar in motivational level, this Thailand trip is also expected to be extremely effective in helping people think out of the box since for most people, especially the customers and field forces

ACI Cropex Aims to Diversify by Entering the Fish Market

ACI Cropex, known for ensuring farmers with fair price on crops, is now planning to diversify their business by entering into the fish market with a fish wholesale point in Kawran Bazaar Dhaka. There is an acute problem of the presence of formalin in fishes nowadays for which buyers are now extremely skeptical in the consumption of fish. ACI Cropex is taking up contracts of several ponds in Mymensingh & Narshindi. The different kinds of fish that will be traded in this wholesale point will include Koi, Telapia, Sharputi, Katol, Rui, Pangash and other delicious local fishes.

Ensuring Hygienic Mangoes: ACI Cropex Takes a Step Ahead

Mangoes are loved by Bangladeshis but most people prevent themselves from having the luscious fruit because of the presence of harmful non-hygienic substances that the producers or marketers inject in the mangoes. Now ACI Cropex has taken a step forward and booked three mango trees so that the business can directly grow and market mangoes and ensure completely hygienic & fresh mangoes.

System of Rice Intensification (SRI)
The New Approach in Rice Production

With the growing demand for food and environmental concerns at the same time, it is needless to say constant innovation is required in order to come up with agro-ecological solutions. According to Norman Uphoff, professor of government and international agriculture at Cornell University, United States twenty-first century agriculture needs an agro-ecological option with low-input advances like the System of Rice Intensification (SRI) which is based on the concept of applying a minimum quantity of water and the individual transplanting of very young seedlings in a square pattern. Compared with standard crop management methods, SRI practices raise yields usually by 50-100 per cent and sometimes more. These gains are achieved with less water, greatly reduced seed rates, less or no inorganic fertilizers, and often even with less labor once the methods have been mastered. By changing how plants, soil, water and nutrients are managed, SRI practices grow larger, better-functioning root systems. These plants have greater resistance to drought and water stress, storm damage, and pests and diseases.

If we take into account our neighboring country India then we see that the country has achieved several successes through System of Rice Intensification. In 2011, a farmer in the Bihar state of India who had adopted SRI reportedly surpassed the world-record paddy yield previously set in China. This also gave birth to controversies: the rice area under SRI methods in Bihar rose from 30 hectares in 2007 to more than 300,000 in 2012. Although not all farmers followed SRI recommendations fully, their average SRI yield in 2012 calculated by government technicians was 8.08 tonnes per hectare which was three times the usual yield in Bihar. Nevertheless, governments in Cambodia, China, India, Indonesia and Vietnam, where two-thirds of the world's rice is produced, have begun supporting the spread of SRI, based on farmers' experiences and scientific evidences.

Some very informative and impressive videos are now available where farmers themselves explain their good experiences with these new methods. SRI is one of the few innovations where scientists have had difficulties in replicating farmers' results in their on-station trials — usually the situation is reversed. Farmers may be getting higher yields than the researchers do because usually farmers' soils are less damaged from fertilizer and agrochemical applications than those of experiment plots.

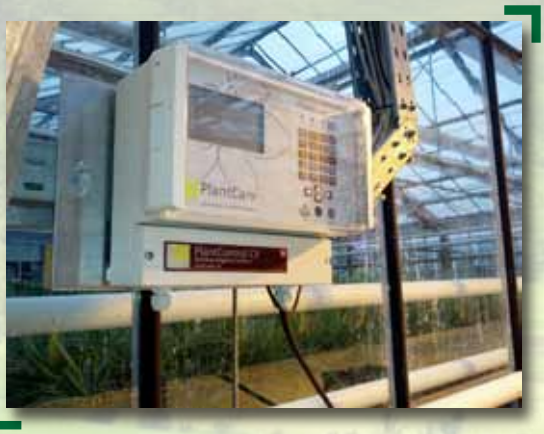
PlantCare Introduces a New Wireless Irrigation System

Swiss start-up PlantCare has recently developed an intelligent irrigation control system that can automatically determine the amount of water that can be absorbed by a plant. According to experts, since using this sensor farmers can achieve the same or even higher crop yields by using less amount of water, it will be able to reduce the amount of water wastage and hence fight the increasing shortage of water around the cultivating areas.

The wireless sensors in this new concept of irrigation system can constantly detect the soil moisture level and send the values to a central computer. These values are then converted by a computer into the amount of water that can be absorbed by the given plant. When farmers know exactly how much water is required for a particular plant there are several distinctive advantages to it. Plants will not get stressed with an excess or scarce amount of water thus they will grow healthier and crop yield will increase. With no excess water, the chances of leakage of chemicals in the groundwater are limited. All of the system's components are constantly monitored and farmers can immediately be informed if there is any mechanism failure via SMS. Since farmers have a permanent access to internet then can get updates of their irrigation devices on their smartphones up to a 30 km. This technology is already being successfully used by many farmers in Switzerland.

PlantCare believes that the market potential of this system is huge. Water usage in irrigation is a big problem during irrigation. In Bangladesh, farmers usually irrigate their fields by experience and feeling. Due to unplanned use of water the ground water level with time is decreasing. Drip irrigation system, a concept to provide water by drops to root zones of plants is very new to farmers. Therefore, Bangladesh is in deep need for a massive change in the irrigation system.

However, since the rural areas are fully developed in terms of internet yet, the establishment of such irrigation system might not be happening in future. However, there are scopes of implementing such irrigation system part by part.



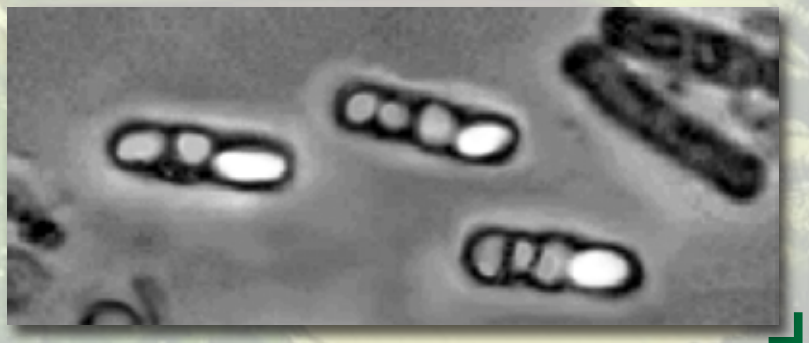
Dhaka University Scientists Invent a New Biopesticides

A biopesticide for agricultural use and a couple of bating agents for the tannery industry has been invented by a talented group of Dhaka University scientists. The biopesticide has be been developed from a genus of bacteria known as bacillus with the intention of cutting down the use of chemical pesticides in agriculture.

Chemical pesticides consist of several toxic substances and hence inappropriate use of pesticides can rather enhance pests' resistance and kill the natural enemies of pests and at the same time can contaminate air, water, bottom sediments, and food. According to the Department of Agriculture Extension (DAE), the country used about 49,000 tonnes of chemical pesticides in fiscal 2012-13. The total expenditure for pesticides import is estimated at Tk. 20 billion annually.

Developed from a bacterium, named Bacillus thuringiensis (Bt) the new biopesticide has been designed to reduce the use of chemicals in agriculture and in the way can help reduce the chemical pollution in the food-chain. Scientists have confirmed that the pesticide was tested in fields on different vegetables, including egg-plants, cabbage and cauliflower and have achieved positive results.

If the biopesticide is produced and marketed well then it can help in not only reducing Poisonous and harmful chemicals are entering our food-chain due to the use of pesticides on foods and environment but also decreasing the cost of production of farmers.



Did you know???

The average dairy **cow** produces **7 gallons** of **milk** a day.
Lemons contain more sugar than **strawberries**
A lobster's **blood** is **colorless** but when exposed to **oxygen** it turns **blue**
Yellow, **red**, and **orange** colors stimulate **hunger**

Apples are more effective at **waking** you up in the morning than **coffee**
Food can only be **tasted** if it is mixed with **saliva**

Calorie Chart

Fresh Fruits (Half Cup)	Calories	Fat (g)	Carbohydrates (g)	Protein (g)
Watermelon	24.3	0.3	5.5	0.5
Honeydew Melon	29.8	0.1	7.8	0.4
Grapefruit	34.5	0.1	8.6	0.6
Apple	36.9	0.2	9.5	0.1
Mango	53.6	0.2	14	0.4
Orange	42.3	0.1	10.6	0.8
Banana	69	0.4	17.6	0.8
Pineapple	38	0.3	9.6	0.3
Grapes	56.8	0.5	14.2	0.5
Raisins	218	0.4	58	2.4
Dates	244.8	0.4	66	0.8

Source: www.blogilates.com

Question & Answer

Q1. I have recently attained my Masters degree and now I am planning to build a business on my own. I want to buy a tractor and rent it out for cultivation. Can you tell me which tractors should I purchase initially and why?

Answer: There are usually two types of tractors; one is used for transporting goods only and the other is used mainly for cultivating lands. What type of tractor you should buy depends on what purpose it will serve your customers. Since you are targeting the farm-owners who want tractors for cultivation only then you should purchase tractors with engines of 50 or more Horsepower. Sonalika Tractors which are 50 or more Horsepower will cost from BDT 10.20 to 11.40 lacs and you need to buy an additional rotavator which would cost around BDT 2.6 to 2.75 lacs. The smallest four wheel tractor that ACI Motors offers is Sonartrac which has a 20 Horsepower engine which cost BDT 7.20 lacs which requires 27% less fuel than other tractors and can easily cultivate 1 acre land in an hour. For multipurpose, however, you can go for a 50 Horsepower engine driven tractor which would serve both the purpose of seasonal cultivation and off-seasonal transportation needs.

Ehsanul Karim, Maltinagar, Bogra

***In order to get answer to any of your agriculture related queries, please email us at **biolife@aci-bd.com** or visit our Facebook page **www.facebook.com/aciagribusinesses.**

WORD Game

Figure out the vegetables from the box!







G	T	I	W	M	L	C	T	N	A	U	M
D	S	N	J	R	R	A	X	I	F	T	O
C	A	I	U	F	E	U	G	K	M	R	O
U	Z	H	V	D	X	L	O	P	O	J	R
X	I	C	Z	S	S	I	T	M	W	F	H
I	P	C	C	N	H	F	A	U	C	D	S
S	K	U	Y	M	P	L	M	P	A	Q	U
I	A	Z	C	M	K	O	O	Y	B	U	M
R	D	O	W	H	X	W	T	J	B	Q	C
B	E	N	I	G	R	E	B	U	A	K	H
H	S	U	C	A	R	R	O	T	G	Y	E
H	S	Z	X	O	L	K	Q	P	E	N	O

***To win exciting prizes take a picture of this page with marked answers and send the picture to biolife@aci-bd.com

ACI Agribusinesses
ACI Centre
245 Tejgaon Industrial Area
Tejgaon, Dhaka, Bangladesh
Phone: + 88 02 887-8603
E-mail: biolife@aci-bd.com
sectoedab@aci-bd.com

www.aciagribusinesses.com