

## Floating Garden: Globally recognized Bangladeshi Sustainable Farming System

Today our agriculture is facing multi-faceted issues like environmental and economic challenges, and climate change. In this context, small-scale and family farmers, and especially traditional agriculture, can offer real solutions for food security, the conservation of natural resources and sustainable rural development, if adequate policies and investment are directed to them. Bangladeshi farmers have proved that again. Recently, Bangladesh's floating gardens, a unique hydroponics production system constructed with natural grasses and plants, is designated as "Globally Important Agricultural Heritage Systems" for innovation, sustainability and adaptability by Food and Agriculture Organization of the United Nations (FAO).

Farmers in some parts of Bangladesh where flood waters can remain for a prolonged period of time have developed a unique hydroponics system in which plants can be grown on the water on floating organic bed of water hyacinth, algae, and other plant residues. This environment friendly traditional cultivation technique utilizes the natural resources of wetlands to grow vegetables and other crops almost all year round providing numerous social, economic, agricultural and ecological benefits to the local population.

Floating Gardens increase the surface area for cultivating vegetables as well as releases land for

producing other important crops. It also increases the income of participating families. A 2014 study\* shows that producing vegetables in floating gardens can increase the income up to 400% in some areas of Bangladesh during the post-flood months. Moreover, using floating gardens can increase arable land from 5% (for smallholder farmers) to 100% (for landless farmers) during monsoon, another study\*\* identified. Apart from increased household income and land use capacity, it also increases the nutritional security of the poor families. From an ecological perspective, floating gardens ensure a good use of an invasive species like water hyacinth. Platform residues from the garden can be reused as organic fertilizers. Besides, the method has no toxic effects and is less prone to pest attacks.

Ours is a riverine country crisscrossed by more than 230 of the world's most unstable rivers. If we can exploit the full potential of floating gardens, we will be able to increase the production of vegetables and other short duration crops efficiently. Not only as an adaptive response to frequent disaster events but also as a means of earning a living, floating gardens will help the community people especially those who are landless.

**Dr. F H Ansarey**  
Executive Director  
ACI Agribusiness



Floating gardens help people grow food during periods of flooding

\* **Economic evaluation of floating gardening as a means of adapting to climate change in Bangladesh.**

Pavel, M.A., Chowdhury, M.A. and Mamun, M.A.A. 2014, International Journal of Environmental Studies 71(3): 261-269.

\*\* **Floating gardening in Bangladesh: a means to rebuild lives after devastating flood.**

Irfanullah, H.Md., Azad, Md.A.K., Khan, A.K.M. Kamruzzaman and Wahed, Md.A. 2011, Indian Journal of Traditional Knowledge 10(1): 31-38.

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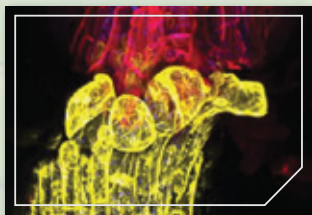
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ACI Agribusiness achieved 1st prize at the National Vegetable Fair 2016 and Vegetable Exposition for its effective participation and demonstrating advanced technologies in agriculture.



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Agricultural grafting dates back nearly 3,000 years.

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Advisor, ACI Agribusiness

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## Developing purple blotch tolerant onion variety through molecular breeding

In last twenty years, molecular biology has revolutionized conventional plant breeding techniques in many areas. The use of molecular markers in conventional breeding techniques has also improved the accuracy of selection and allowed breeders to produce varieties with combined traits that were difficult before the advent of DNA technology. Onion (*Allium cepa* L.) is one of the most important crops in Bangladesh. Onion productivity in Bangladesh is much lower (8.49 tones/ha.) compared to other countries (44.1 tones/ha. in Japan). Purple blotch disease (PBD) caused by *Alternaria porri* (Ellis) cifferri decreases the yields by up to 50 percent. Genetically resistant onion varieties are the most economical, simple and eco-friendly mode of disease management.

The use of molecular markers provided the opportunity to understand the genetic resistance more precisely. Quite a large number of onion germplasm can be found in the world since this is a popular spice crop of the world. In fact PBD resistant hybrid varieties have recently been developed in New Zealand and reported to one in bangladsh too. A large number of varieties can be screened locally to isolate the promising lines against

the local pathogens. Thereafter the lines found to be suitable for production can be used directly as variety while the genetically resistant ones can be used for transferring the gene/s to the highly productive cultivated varieties of the country. Some of these lines can be used for further improvement through molecular breeding techniques using Marker Assisted Back Cross breeding or creating new but desirable micro-mutants through TILLING.

By making onion resistant to the purple blotch disease, yield can be increased. In fact weaking on the genetics of the crop without creating transgenic product, the molecular breeding techniques mentioned above can be used to increase overall crop performance, yield and adaptive to the local climate. The best performing germplasm are being imported in to the country at the moment. It is time more research focus is given on this crop to develop excellent performing local varieties. The support of Ms Adeeba Raihan and Ms. Monzur-E-Mohsina Ferdous is highly acknowledged.

**Prof. Lutfur Rahman**

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



## Innovation and New Products

### MAAC-4

MAAC-4 is a chelated micro mineral feed premix for livestock. It is a light brown granular powder which contains Zinc proteinate, Manganese proteinate, Copper proteinate, Cobalt Proteinate. MAAC-4 is used to prevent milk spoilage by decreasing somatic cell count in milk and to prevent transportation stress. It also prevents

secondary infection and cures affected animal quickly. Moreover, MAAC-4 is effective to reduce hoof's problem of animal and prevent mastitis. It is manufactured by Biovac (Thailand). On 3 January 2016, ACI Animal Health launched MAAC-4. It is available in 20g, 100g sachets and 500g plastic container.





### ACI Agribusiness Wins Top Prize at First National Vegetable Fair

ACI Agribusiness achieved 1st prize at the National Vegetable Fair 2016 and Vegetable Exposition for its effective participation and demonstrating advanced technologies in agriculture. Dr. Mohammad Muhebbullah Ibne Hoque, Assistant Manager (Product Development Services - Seed), received the Award on behalf of the Company.

The 1st National Vegetable Fair 2016 and Vegetable Exposition was held with more than 200 varieties of vegetables during 17 – 19 January 2016 at the premises of A. K. M. Giasuddin Milky Auditorium, Khamar Bari, Farmgate, Dhaka. The first of its kind fair in the country was organized by Agriculture Ministry along with the Department of Agricultural Extension (DAE), Agriculture Information Services (AIS), Bangladesh Agricultural Research Institute (BARI) and Bangladesh Agricultural Research Council (BARC). The main theme of the fair

was "cultivation of various vegetables will reduce the scarcity round the year". ACI Agribusiness, along with farmers, private seed companies, research organizations, owners of the cold storages, vegetable traders, and vegetable exporters participated in the fair. Agriculture Minister Begum Matia Chowdhury launched the fair. While visiting the ACI stall, she expressed her impression about the products and technologies displayed by ACI Agribusiness. The visitors got an opportunity to know the detailed information about vegetables produced in different parts of the country during their visit to this exhibition. 'Colors of life'-was the theme of ACI's stall which signified the importance of colorful vegetables in fulfilling our daily nutritional requirements. The beautifully decorated ACI stall fascinated everyone with its marvelous range of agro products, technologies, vibrant decorations, and food offerings in the way to be the top prize winner of the fair.





## Events and Activities

### ACI Fertilizer: Q1 2016 Regional Strategic Workshops for Field Force

ACI Fertilizer organized region wise Strategy Workshops for 1st Quarter 2016, which took place in three different places. The first workshop was held at ACI Center, Dhaka on 9 January 2016 and the participants were Field Force of Dhaka and Comilla Zone. On 12 January 2016, the second workshop was held at Bogra Sadar with the participation of Field Force from Rajshahi and Rangpur Zone. The last workshop was organized for Jessore Zone on 14 January 2016 at Khulna Sadar.

The main purpose of these workshops was to position the sales, debtor and promotional plan of the 1st quarter.

Business Director, General Manager Sales, Product Manager, and Marketing executives were present at the workshops. Business Director delivered his motivational speech and presented about the Customer Relationship Management issue. GM, Sales discussed about the way forward of Sales and Debtor management and Budget 2016. Product Management Team discussed about the product performance of 2015 and scope of existing & new innovative product and strategy of 2016. Following the workshops, participating Field Force teams made action plans on Sales, Recovery and Promotional Activities for 1st Quarter 2016.



### Bumper Potato Production using Crop Specific Balanced Fertilizer

ACI Fertilizer has started to market crop specific balanced fertilizer in collaboration with Northern Agro Service; Dinajpur. The aim of this effort is to enter into Basic Fertilizer market and supply total nutrient solutions to the farmers' crops. ACI BF consists of organic matter, macro and micro nutrients which will help the farmers for sustainable nutrient management and getting the desired crop production. The farmers are creating the expected results of using ACI BF. The Field Force of Dinajpur area conducted several demonstrations of ACI BF Potato in this year. A demo result of ACI BF Potato in Md. Anisur Rahman's 12.5 decimal plot at Charadangi Bazar, Sadar, Dinajpur produced 1,100 kg which had a variance of 23.60% compared to 890 kg production in the control plot.



## Events and Activities

### New Collaboration for Balanced Fertilization in Coastal Area

Recently ACI Agribusiness has made an agreement with International Finance Corporation (IFC) to promote quality agriculture inputs among the farmers and traders in the coastal area in the southern region of Bangladesh. Under this two and half years long agreement, ACI Fertilizer will promote fertilizer products in a potential market with this development partner. During the project, balanced fertilization will be promoted by ACI Fertilizer through training programs for both farmers and retailers; through result demonstration of balanced fertilizer on different crops; soil test based fertilizer recommendation to encourage the farmers using quality fertilizer products in a proper method with the proper dose. Approximately 40,000 farmers will be benefited from this training initiative in two phases and a business model will be developed to ensure the return of investments for sustainable agriculture.



### State-of-the-art Poultry Solution Exhibited in Bogra

On 11 January 2016, ACI Animal Health attended a conference on ‘Sasso as an alternative to Native Chicken’ at Naz Garden, Bogra where prominent poultry farmers, consultants, members of Sonali Breeders Association, representative of meat processing industries were present. ACI Animal Health, as the local partner of Ceva Sante Animale, France was invited by Sasso, France to present the state-of-the-art solutions in preventing most threatening diseases of poultry. Besides, ACI Animal Biologics presented technical

session on 2 Recombinant technology vaccines - Vectormune HVT-NDV for prevention of Newcastle Disease & Marek’s Disease of poultry, and Vectormune HVT-AIV for prevention of Avian Influenza which is a grave zoonotic (property to transmit from poultry to human) and economic concern. Farmers participated in another demonstration of Hatchery vaccination technique by C.H.I.C.K (Ceva Hatchery Immunization Control Keys) Services Team with great enthusiasm.





## Events and Activities

### Seminar on Appropriate Vaccination at Narsingdi

A seminar on 'Poultry Farm Management & Appropriate Vaccination program' was organized by ACI Animal Health at Chaitanya, Narsingdi on 21 January 2016. Most of the participants of this seminar were commercial layer farmers. The focus of the seminar was on aware

ness building for appropriate vaccination techniques, benefits of hatchery vaccination (Under Ceva Hatchery Immunization Control Keys-C.H.I.C.K) over field vaccination and usage of modern vectored vaccines, immerging infectious bronchitis with variant strains.



### ACI Animal Health at Bangladesh Expo 2016 in Nepal

ACI Animal Health participated in the Bangladesh Expo 2016 held at the Bhrikutimandap Exhibition Hall in Kathmandu from 21 to 25 January 2016. The Embassy of Bangladesh in Kathmandu organized the five-day long exhibition in a bid to strengthen the business relations between the Nepal and Bangladesh. ACI Animal Health along with 70 business houses of Bangladesh related to the production of construction materials, home appliances, ceramics, plastic products, cosmetics, ready-made garments, textiles, pharmaceuticals, footwear, electronics, agriculture products, agro machineries, chemical fertilizers, IT solutions, among others, partici

pated in the expo. ACI Animal Health exhibits from its wide range of products and solutions of premium quality nutrient vet, preventives, anthelmintics, analgesics, anti-histaminic, anti-pyretic and vaccines for poultry, dairy and fisheries industries. The aim of this expo was to help visitors understand how the farm-owners could be benefited with useful information of technologies for protein production, while solving problems related to domestic animals and fisheries. Many distinguished guests of Nepal including Mr. Som Prasad Pandey, Industry Minister of Nepal, visited the expo.





## Events and Activities

### ACI Motors launched new Sonalika Tractor

ACI Motors launched a new variety of Sonalika Tractor to its vast product range on 18 January 2016 at ACI Center in Dhaka. The newly launched tractor SONALIKA DI 50 RX DELUXE consists of Power Steering; Oil immersed brake and Single Acting Hydraulic Line. Through these features, operator's comfort in long-term operations will be ensured, as well as cultivation will be more precise in corner areas of the farm land. Besides Oil immersed brake will ensure more road safety and

longevity of the Tractor. Single Acting Hydraulic Line will result in high performance of the hydraulic lifting capacity. Managing Director of ACI Limited, Dr. Arif Dowla, Executive Director of ACI Agribusiness, Dr. F H Ansarey, President (International Business) of International Tractors Ltd. India, Mr. Gaurav Saxena and top management officials from both the companies were present at the launching ceremony.



### FAEC 2015: The Quest for Next Agri Entrepreneur

ACI Agribusiness, as the largest integrator in agriculture, livestock and fisheries, is searching for the next agri entrepreneur through the Future Agri Entrepreneur Contest 2015 (FAEC 2015). In January 2016, contestants of FAEC have gone through the first 3 phases of the contest. After the submission of individual essays in step-1, 45 students from 6 Agricultural universities were selected for step-2. They were invited to participate in a

workshop on 'Sector Analysis' at ACI Center, Dhaka. After the workshop, the students were divided into 14 teams out of which best 10 teams were selected for 'Step-3: Business Plan'. These 10 teams participated in another workshop on the business plan at ACI Center. Now the best 5 teams will proceed to the next and final round based on their business plan presentation.





## Grafted Plants' Genomes Can Communicate

Agricultural grafting dates back nearly 3,000 years. By trial and error, people from ancient China to ancient Greece realized that joining a cut branch from one plant onto the stalk of another could improve the quality of crops. Now, researchers at the Salk Institute and Cambridge University have used this ancient practice, combined with modern genetic research, to show that grafted plants can share epigenetic traits, according to a new paper published the week of January 18, 2016 in the Proceedings of the National Academy of Sciences.

"Grafting is something done often in the commercial world, and yet, we really don't completely understand the consequences for the two plants," says Joseph Ecker, one of the senior authors of the paper and director of Salk's Genomic Analysis Laboratory. "Our study showed genetic information is actually flowing from one plant to the other. That's the surprise to me." That genetic information shared between plants isn't DNA--the two grafted plants keep their original genomes--but epigenetic information is being communicated within the plant. In epigenetics, chemical markers act on existing genes in a plant or animal's DNA to turn genes on or off. Epigenetics can determine whether a cell becomes muscle cell or a skin cell and determine how a plant reacts to different soils, climates and disease. "In the future, this research might allow growers to exploit epigenetic information to improve crops and yields," says Mathew Lewsey, one of the first authors of the paper and a Salk research associate.

(Source: Agriculture and Food News, ScienceDaily. [www.sciencedaily.com](http://www.sciencedaily.com))



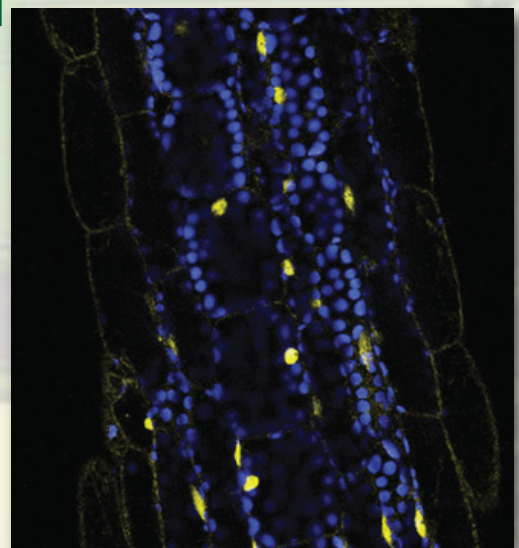
A graft between two genotypes of *Arabidopsis thaliana*, shown in a confocal microscopy image.

Photo credit: Charles Melnyk/University of Cambridge

## Research Shows Plants Find Light Using Cellular Sensors

Scientists at the Salk Institute have discovered a way by which plants assess light to outgrow their neighbors. The study shows how the depletion of blue light detected by molecular sensors in plants triggers accelerated growth to overcome a competing plant. The new study changes the previously believed concept that plants respond to diminished red light by activating the growth hormone auxin to outpace its neighbors. However, this is the first time researchers have shown that instead of changing auxin levels, plants use cellular sensors called cryptochromes that respond to diminished blue light by turning on genes promoting cell growth. Cryptochromes are blue light-sensitive sensors responsible for plant growth and flowering. They were first identified in plants, but are also found in animals, and in both organisms, they are associated with circadian rhythm.

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





## How Arsenic Builds Up in Plant Seeds Discovered

Researchers from Florida International University (FIU) are part of an international team of scientists that has discovered how arsenic builds up in the seeds of plants similar to rice. Professor Barry P. Rosen's team at FIU discovered that *Arabidopsis thaliana* uses transport systems for inositol, a type of sugar, to load arsenite, the toxic form of arsenic, into seeds. This is the first identification of transporters responsible for arsenic accumulation in seeds. Rosen predicts that the same pathway could be present in rice grains and these discoveries will enable the development of new rice cultivars with less arsenic in the grain.

Arsenic, both a toxin and a carcinogen, comes from minerals and is used in some herbicides, animal growth promoters, and semi-conductors. It is a pervasive environmental contaminant of food and water that threatens the health of tens of millions people worldwide.

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



## Rice as a Platform for the Production of Microbicide Against HIV

Protein microbicides containing neutralizing antibodies and antiviral lectins may help reduce the infection of *human immunodeficiency virus* (HIV) if its components are manufactured in large quantities at an affordable cost. Various scientists, led by Evangelia Vamvaka of the University of Lleida-Agrotecnic Center in Spain, expressed the antiviral lectin griffithsin (GRFT), which shows neutralizing activity against HIV, in the endosperm of transgenic rice (*Oryza sativa*), to determine if rice can be used to produce GRFT. The team also established a one-step purification protocol for extracting GRFT, which could potentially be developed into a larger-scale process to facilitate inexpensive downstream processing.

OSGRFT was found to have similar efficiency to GRFT produced in *Escherichia coli*. Further tests confirmed that both crude and pure OSGRFT showed potent activity against HIV and the crude extracts were not toxic towards human cell lines, suggesting they could be administered as a microbicide with only minimal processing. The results indicate that rice could be developed as an inexpensive production platform for GRFT.

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



### Scientists Complete Bread Wheat Genome Sequence

The International Wheat Genome Sequencing Consortium (IWGSC) reported that the whole genome assembly of bread wheat, the most widely grown cereal globally, has been completed. The project consisted of producing a whole genome assembly of the bread wheat variety Chinese Spring based on Illumina short sequence reads assembled with NRGene's DeNovoMAGIC software. It is expected that with this new data available, global research on crop improvement will be accelerated. The information on the whole genome assembly will be combined with physical-map based sequence data to produce a high-quality, ordered sequence for each wheat chromosome that precisely locates genes, regulatory elements, and markers along the chromosomes, providing vital tools for wheat breeders.

"This new wheat genome sequence generated by the IWGSC and its partners is an important contribution to understanding the genetic blueprint of one of the world's most important crops," said Curtis Pozniak, one of the researchers working on the project. "It will provide wheat researchers with an exciting new resource to identify the most influential genes important to wheat adaptation, stress response, pest resistance, and improved yield."

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



### New Weed Control Method for Organic Farmers

Weeds are a major scourge for organic growers, who often must invest in multiple control methods to protect crop yields. A relatively new weed control method known as abrasive weeding, or "weed blasting," could give organic growers another tool. The method, recently field-tested at the University of Illinois, is surprisingly effective. In conjunction with plastic mulch, abrasive weeding reduced final weed biomass by 69 to 97 percent compared to non-weeded control plots, said U of I agroecologist Samuel Wortman.

Abrasive weeding involves blasting weed seedlings with tiny fragments of organic grit, using an air compressor. For the current study, grit was applied through a hand-held siphon-fed sand-blasting unit connected to a gas-powered air compressor, which was hauled down crop rows with a walk-behind tractor. The study looked at a number of grit sources: walnut shells, granulated maize cob, greensand, and soybean meal. If applied at the right plant growth stage, the force of the abrasive grit severely damages stems and leaves of weed seedlings. Wortman found no significant differences between the grit types in terms of efficacy. "When it leaves the nozzle, it's at least Mach 1 [767 mph]," Wortman noted. "The stuff comes out so fast, it doesn't really matter what the shape of the particle is." Because ricocheting particles can pose a risk to the applicator, Wortman advises using protective eyewear. An additional benefit of weed blasting is the potential for growers to use organic fertilizers, such as soybean meal, as blasting material. The method is now being tested in different horticultural crops, including broccoli and kale, with and without additional weed control methods.

(Source: Agriculture and Food News, ScienceDaily. [www.sciencedaily.com](http://www.sciencedaily.com))



Handheld weed blasting unit used in the study.

Photo credit: Samuel Wortman



## FAO declares 2016 International Year of Pulses

The FAO has declared 2016 as the International Year of Pulses to raise awareness on the benefits of pulses and boost global production. Pulses are part of traditional diets, especially in Africa, Asia and Latin America, and are grown by small-scale farmers. "They have been an essential part of the human diet for centuries. Yet, their nutritional value is not generally recognized and is frequently under-appreciated," said FAO director-general José Graziano da Silva.

Popular pulses include dried bean varieties (kidney beans, lima beans, butter beans and broad beans) and pea varieties such as chickpeas, cowpeas, black-eyed peas, pigeon peas, among others. Their protein content is double that of wheat and rice, and are also rich in micronutrients, amino-acids and Vitamin-B. In addition to being high on nutrition, pulses are a cost-friendly alternative to animal-based protein, said the FAO.

Growing pulses can be beneficial to farmers, especially in economically backward areas, as they yield higher prices than cereals. "Despite strong evidence of the health and nutritional benefits of pulses, their consumption of pulses remains low in many developing and developed countries. The International Year can help overcome this lack of knowledge," said UN Secretary-General Ban Ki-moon. The UN chief also called for collaborative commitment and concrete action by all relevant actors within the UN system, farmers' organizations, civil society and the private sector, to make the International Year of Pulses 2016 a success.

(Source: Far Eastern Agriculture, [www.fareasternagriculture.com](http://www.fareasternagriculture.com))



Various types of beans are widely grown across the world.

Photo credit: Shanlung/Flickr

## Eating Less Meat Might Not Be Way to Go Green

Reduced meat consumption might not lower greenhouse gas emissions from one of the world's biggest beef producing regions, new research has found. The finding may seem incongruous, as intensive agriculture is responsible for such a large proportion of global greenhouse gas emissions. According to research by University of Edinburgh, Scotland's Rural College (SRUC) and Brazilian Agricultural Research Corporation (Embrapa), reducing beef production in the Brazilian Cerrado could actually increase global greenhouse gas emissions. The findings were published in the journal Nature Climate Change.

Lead author Rafael Silva, of the University of Edinburgh's School of Mathematics, explains: "Much of Brazil's grassland is in poor condition, leading to low beef productivity and high greenhouse gas emissions from cattle. However, increasing demand for meat provides an incentive for farmers to recover degraded pastures. This would boost the amount of carbon stored in the soil and increase cattle productivity. It would require less land for grazing and reduce deforestation, potentially lowering emissions." While grasslands are not as effective as forests at storing carbon, Brazilian grass -- mostly *Brachiaria* genus -- has a greater capacity to do so than grass found in Europe, due to its long roots. High quality grasslands will cause more carbon to be stored in the soil, which will lead to a decrease in CO<sub>2</sub> emissions. Grassland improvement involves chemical and mechanical treatment of the soil, and use of better adapted seeds along with calcium, limestone and nitrogen fertilizers. Most Brazilian grassland soils are acidic, requiring little nitrogen.

(Source: Agriculture and Food News, ScienceDaily. [www.sciencedaily.com](http://www.sciencedaily.com))





### Believe it or not!



There are more than 7,000 varieties of **apples** grown in the world.



**Lettuce** is a member of the sunflower family.



**Eggs** age more in one day at room temperature than in one week in the refrigerator.



A hive of bees flies over 55,000 miles to bring you one pound of **honey**.

**Bananas** are about 99.5% fat-free.



### Calorie Chart

Fresh Fruits		
Food Type	Quantity	Calories (Kcals.)
Sugar	5 gm	20
Honey	5 ml	16
Brown Sugar	5 gm	16
Jam/Jelly	1 Tbsp (20 gm)	55
Butter	1 Tbsp	45

Source: <http://www.moh.gov.sa>

### Agro Tips

Some symptoms of nitrogen deficiency (in absence or low supply) are:

- The chlorophyll content of the plant leaves is reduced which results in pale yellow color. Older leaves turn completely yellow.
- Flowering, fruiting, protein and starch contents are reduced. Reduction in protein results stunted growth and dormant lateral buds.

Appropriate use of nitrogen type fertilizer (Ammonium Sulphate) may help you to get a better yield.



### Sharing is caring!

Plastic-bottle made homes are popping up around the world. In the United States alone, 47 billion plastic bottles are discarded annually, and worldwide, enough plastic is thrown out in a single year to circle the globe four times. But a form of construction being used throughout Africa and Latin America is making a difference, not only by reducing plastic waste but also by taking advantage of the durability of plastic bottles to provide shelter for the homeless. The "bottle wall technique," developed by German firm Ecotec Environmental Solutions, has been training people in Nigeria, where 16 million people are homeless, to build homes out of plastic bottles. Now, a two-bedroom home with a bathroom, a kitchen, and a living room can be made from 14,000 plastic bottles and mud.

Do you think we can replicate it in Bangladesh?



### ACI Agribusinesses

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

[www.aciagribusinesses.com](http://www.aciagribusinesses.com)



### ACI Agribusinesses

*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.