

Grafting Seedlings can Transform life Through Improved yields, Income & more Possibilities

Farmers producing tomatoes often face problems with bacterial wilt and other soil-borne disease infestations on their farms. Again, Mango producers may find it difficult to induce pest resistance characteristics in mango trees. Moreover, with a very large, ever increasing population & limited, yet decreasing arable land, Bangladesh has the challenge of food security with climate change impacts. Good news is that, grafting seedlings, which is simple & easy to apply, can solve many of these problems. In addition to that, with improved production leading to increased income, specially in case of fruits as well as vegetables, it can transform life in Bangladesh. Grafting is a horticultural technique in which tissues from one plant are inserted into those of another so that the two sets of vascular tissues may join

together. In short, grafting is taking a part from one plant and making it grow on another plant. Most usually we see this with tree crops like mango, litchi, sofeda, lemon etc. But it can be applied for improved vegetable production for eggplant, tomato, melon, peeper, chilly, cucumber and some ornamental plants. The ability to induce new qualities like dwarfing or cold tolerance, disease/pest resistance as per requirements & fruitfulness without the need for completing the usual longer juvenile phase – are among the main advantages of grafting. More interestingly, a practice sometimes carried out by gardeners is to graft related potatoes and tomatoes so that both are produced on the same plant, one above ground and one underground.



Grafting seedlings can open new doors for small & medium scale farmers particularly for women in Bangladesh. A recent report of The Asian Vegetable Research and Development Centre (AVRDC) shows that grafted tomatoes grown under plastic shelters during the summer rainy season have provided a very good income for many farmers who are growing summer tomato and producing tomato seedlings in

Jessore, Bangladesh. Demand for grafted seedlings is increasing as more tomato farmers face problems with bacterial wilt which can be dealt by grafting it with eggplant rootstocks. The economic possibilities of grafting seedlings can be inferred from this: grafted seedlings take a lot of effort to produce, but can be sold at 7 Taka each as compared to 1 Taka each for non-grafted seedlings.

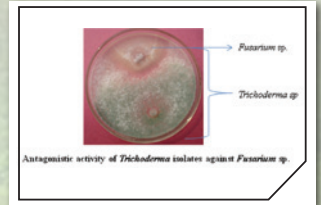
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Generating a genome to feed the world: African Rice Sequenced



An international team of scientists has sequenced the genome of African rice *Oryza glaberrima*.

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Letter from Prof. Lutfor Rahman

Newer Dimension of Plant Breeding: Pest Resistant Varieties for Bangladesh

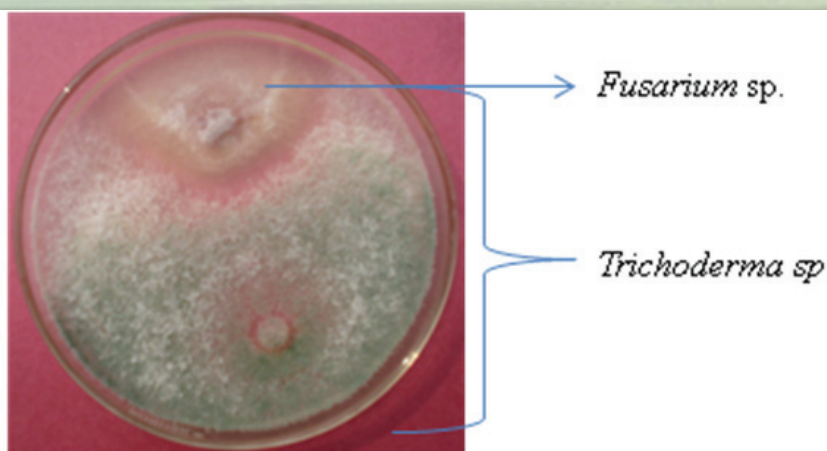
The Plant breeding research in Bangladesh must enter into the molecular breeding age as early as possible. We can say we are already within the system but to many of the scientists and the planners, these are at the periphery of the vast area of molecular breeding provisions. Thus, the necessity is not only to develop manpower and the breeding labs but also to design effectively collaborative Research and Development plans so that participation by different stakeholders and knowledge base can be possible within shortest possible time to harness effective development of new varieties with desirable traits.

Pests of crops: The disease pathogens are usually considered as the major pest group that not only reduces the total production but also the market value, the nutrient quality and the usability of the products. For example Phytophthora infested potato fields are almost burnt out fields reducing yields and product quality severely. While once the infestation of Fusarium is recorded in the tomato in addition to virus complex not only yields but also keeping quality and the nutrient quality are reduced. Thus the irony is that the products are available at the market but of low quality. Again, there are biocontrol agents in the market like the Trichoderma, but the products being developed and marketed in the country are possibly not having appropriately identified

species/race with effective conservation process so that the use of the same species/race can work in a same fashion when products are developed and marketed for use to the farmers.

In order to start organized resistant breeding of plant varieties of rice, wheat, potato, rapeseed and tomato the Advanced Seed Research and Biotech Centre (ASRBC) has started collection of samples of disease pathogens from different fields, markets and plant sources. The samples will be utilized for resistance breeding and biofortification activities. These samples have been used to isolate different types of races of specific species and being characterized both at morphological and molecular levels. The genetic fingerprints of the samples are also being completed before being conserved.

These materials are available for sharing with scientists of other organizations on some terms and conditions suitable for both ASRBC and the institutes or universities asking for the products. We have actually started collecting and characterizing the genetic resources of different pathogens mostly after we failed to collect such products from sources within Bangladesh. There are information already generated through ASRBC studies on the effect of two species of Trichoderma on the control of the pathogens of Fusarium and Phytophthora sp.



Antagonistic activity of *Trichoderma* isolates against *Fusarium sp.*

Innovations and New Products

ACI Animal Health Launched 3 new Products

ACI Animal Health is committed to serve the livestock, fish & poultry sector of Bangladesh. As a part of its continuous effort, ACI Animal Health has launched 3 new products in July 2014.

Bigarol®

The first product launched by ACI Animal Health in June 2014 is Bigarol®, a leading brand of feed flavors from Germany for the full range of livestock, bird, pet and aquaculture. This first of its kind product in Bangladesh works as a food attractant for animals by adding feed flavors. Using Bigarol® as feed additive for animals will

ensure optimization of food in smell and taste, improvement of food palatability & feed conversion/intake, standardization of food by masking varying qualities & lower food wastage. It is available as powder in two different pack sizes of 20 gm & 100 gm.



Keetguard

ACI Animal Health introduced the first herbal Ectoparasiticide and Fly repellent concentrate in Bangladesh named Keetguard. It is an herbal product of 'Ayurved' (India) which comprises of herbs' oil viz. Eucalypta globulus, Cedrus deodara and many others. For an incomparable efficacy, Keetguard prevents and treat skin affections in livestock & poultry caused by ticks, mites, flies & lice; has no residual or side effects. Unlike other products in the

market, it inhibits the development of eggs, larvae and pupae. Contrary to its chemical counterpart, this Herbal Ectoparasiticide can be applied on open wounds; is non-toxic for human, animal & environment. Using it will prevent both direct & indirect losses of farmers i.e. preventing reduction of growth, milk production & further spread of disease in other animals. Keetguard is available as liquid solution in a pack size of 100 ml.



SANGROVIT® Water Soluble

SANGROVIT® Water Soluble, also known as SANGROVIT® WS, is a patented, award winning, purely plant-derived product from Germany that increases animal growth, meat quality and yield. It is manufactured by famous German company Phytobiotics. SANGROVIT® WS is renowned for its scientifically proven positive effect on animal welfare and for the support of gut health. This herbal food additive & growth promoter is appropriate for all animal species and consists of DL-Malic acid and

special active components from a plant extract, e.g. quaternary Benzophenanthridine alkaloids and Protopine alkaloids. It reduces stress & increases appetite of animals. It cures Salmonellosis & Necrotic enteritis providing healthy gut. It also ensures optimized nutrient absorption resulting in reduced feed cost, better meat quality & higher egg production rate. SANGROVIT® WS is launched in Bangladesh by ACI Animal Health. It is available in 50 gm & 100 gm sachets.



Events and Activities

MoU signed between ACI Agribusinesses and Solidaridad Network Asia: Move to shore up farm Supply Chain in Southwest Region

ACI Agribusinesses has teamed up with Solidaridad Network Asia to help develop an efficient business linkage for the agro-input and output supply chain for increasing the productivity of the smallholders in the southwest region. A Memorandum of understanding (MoU) was signed between two organizations on July 7, 2014 at the ACI Centre, Tejgaon, Dhaka for the purpose. Dr. F H Ansarey, Executive Director, ACI Agribusiness and Mr. Selim Reza Hasan, Country Manager, Solidaridad Network Asia signed the MoU. Mr Hasanul Haque, Agribusiness Advisor, ACI Agribusiness; Mr. Shakil Anwar, Programme and

Partnership Manager, Solidaridad Network Asia and officials from both organizations were present in the signing ceremony.

Under this partnership, Solidaridad and ACI Agribusiness will work together to improve the efficiency for the backward and forward market linkages for agricultural supply chain development. Both the organizations will work together to establish a well-functioning seed, fertilizer, animal medicine, feed and agro machinery distribution system that increases the productivity and incomes for the smallholders.



Connecting the Community: ACI Motors Distributed Gift Hampers & Arranged Iftar Mahfil in 7 Regions

ACI motors is always committed to be a part of the community it serves. Arranging different events & programs engaging the community is a part of its regular activity. To share the spirit of holy Ramadan, ACI Motors has arranged Iftar Mahfils for local customers, mechanics, drivers & other stakeholders in its all

7 regions through out the month of July. On these occasions customers, vehicle drivers, mechanics, machine operators & local stakeholders got the opportunity to meet & greet each other. Unlike regular business events, these Iftar Mahfils were gatherings of communities which were marked by the religious

as well as social importance of Ramadan.

Apart from arranging Iftar Mahfils, ACI Motors distributed promotional gift hampers to customers, dealers, key stakeholders as well as other market competitors.

Field Demonstration of ACI Motors in Narsingdi, Dhamrai & Manikganj

ACI Motors was established with the aim of reducing ever increasing costs of production and the consistent scarcity of field labor. It plays a vital role by providing high quality modern agriculture machineries to farmer which helps in reducing cost of production. To give on ground experience and an opportunity to inspect, interact & inquire with the field team, ACI Motors arranged

field demonstrations of its tractor & power tiller in Narsingdi, Dhamrai (Dhaka) & Manikganj during July 2014. In such field demonstrations farmers along with other stakeholders could see the usage of these agricultural machineries, compare their features and advantages. They also got on ground tips & answers based on their queries.



Events and Activities

ACI Seed Arranged Field Day at Gazipur on Maradona, a Summer Cauliflower

Cauliflower is a popular vegetable in our country, but a challenging one to grow in summer when temperatures are on the rise. In such case, heat tolerant varieties would help farmers to address the challenge of production. Maradona is such a variety that can produce big and good quality curd at high temperature that prevails during March-June of the year.

The performance of this high value variety is very well during the last

two years. A joint work is under taken by CCBA (Cold Chain Bangladesh Alliance) and ACI to introduce this high value crop among the CCBA group farmers in Gazipur. For this farmers' training, demonstrations along with field days are being conducted in phases. A field day on Maradona took place on July 10, 2014 at Birtoil, Ulukhola, Gazipur with participation of 30 cauliflower farmers there.

According to the demo result of

Gazipur, the variety yielded good quality curd with average weight of 400gm at 55th day after transplanting. The seedling and young leaves can endure the heat and do not get wilt with high temperature. So, its irrigation requirement is low. It is also reported that, in terms of seedling vigor, days to maturity, compactness, curd weight, Maradona attracted the attention of the farmers.



ACI Agribusinesses Congratulates Dr Md. Shafiqul Aktar

A big congratulation to Dr Md. Shafiqul Aktar for his successful completion of 3 years as on 24 July, 2014 as Business Manager -Seed



Events and Activities

ACI Cropex successfully Introduced 4 types of Branded Mangoes this Season

ACI Cropex has successfully introduced branded mangoes to valued customers in super shop Agora and corporate offices this year. The journey started from the end of May

2014 and four types of best quality mangoes were introduced this year. Customers in super shops as well as in 27 corporate offices had a very high level of satisfaction in terms of

quality of mangoes. Numerous requests were also received to introduce new items ensuring best quality through ACI Cropex.

ACI Cropex plans to Introduce Best Quality Fish for Consumers

After the successful launching of branded mangoes in this season, ACI Cropex is planning to introduce best quality branded fish for our valued customers within a short period of time. Its branded fishes are expected to be available at specific wet markets. Bulk selling of

these fishes to existing super shops & corporate offices will be also available. It had a discussion with KATALYST on the Post-Harvest Management Process module. After an extensive search process for proper fish sources throughout the month of July, ACI Cropex team finally

identified a number of model fish producers in Mymensingh. It hope to have a final meeting with these fish producers in early August & launch its branded best quality fish for customers by mid of August 2014.

Crop Specific Balanced Fertilizer launched by ACI Fertilizer

ACI Fertilizer launched crop specific balanced fertilizer in July 2014 with the collaboration of Northern Agro Services Limited. Balanced Fertilizer (BF) is a mixed fertilizer which contains Organic Matter, Nitrogen

(N), Phosphorus (P), Potassium (K), Sulphur (S), Zinc (Zn), Boron (B) etc. ACI Fertilizer has a plan to market Balanced Fertilizer for Rice, Wheat, Maize, Potato, Mustard, Chili, Brinjal, Tomato and Fruits

considering the opportunity of the business. In July 2014, the Business started its journey in this new arena through launching Balanced Fertilizer (Rice) under the brand name – “ACI BF (Rice)”.

Key Benefits:

- ▶ Stabilized and enhanced soil fertility
- ▶ Ensured nutrition as per plants' need
- ▶ Reduced incidence of plant diseases
- ▶ Natural improvements in plants' disease resisting ability
- ▶ Lower production costs for farmers and reduced chances of negative environmental impact
- ▶ Increased agricultural product value due to increased quality
- ▶ Increased crop yield.



Generating a genome to feed the world: African Rice Sequenced

An international team of scientists has sequenced the genome of African rice *Oryza glaberrima*. The new information will enable scientists and agriculturalists to develop varieties of rice that can survive in a changing climate.

An international team of researchers led by the University of Arizona has sequenced the complete genome of African rice. The genetic information will enhance scientists' and agriculturalists' understanding of the growing patterns of African

rice, as well as enable the development of new rice varieties that are better able to cope with increasing environmental stressors to help solve global hunger challenges.

Understanding the complete genome of African rice will enable researchers and agriculturalists to develop new varieties of rice with African rice's hardiness, making them better able to adapt to conditions of a changing climate.

Credit: Image courtesy of the International Rice Research Institute



Novel gene for salt Tolerance found in wild Soybean

A gene of wild soybean linked to salt tolerance has been discovered by researchers, with implication for improving this important crop to grow in saline soil. This study provides an effective strategy to unveil novel genomic information for crop improvement.

A team of researchers from The

Chinese University of Hong Kong, BGI and other institutes have identified a gene of wild soybean linked to salt tolerance, with implication for improving this important crop to grow in saline soil. This study published online in Nature Communications provides an effective strategy to unveil novel genomic information for crop improvement.



Researchers develop new tool to diagnose EMS in Shrimp

Two research groups in Japan have discovered a new tool for diagnosing early mortality syndrome (EMS) in shrimp. Not only can the new diagnostic method detect the bacteria, but can also differentiate between bacteria that carries the disease and benign bacteria with 100 percent accuracy, according to researchers. The Japan International Cooperation Agency and the Japan Science and Technology Agency announced the discovery of the diagnostic method in July 2014.

The new method is part of a joint

project 'Development of Aquaculture Technology for Food Security and Food Safety in the Next Generation.' The project is being carried out by Tokyo University of Marine Science and Technology, Japan International Research Center for Agricultural Sciences and National Research Institute of Aquaculture in Japan. In Thailand, department of fisheries, Kasetsart University, Chulalongkorn University and Walailak University are doing the research.



Boron Tolerance Discovery for Higher Wheat Yields

The genes in wheat that control tolerance to a significant yield-limiting soil condition found around the globe – boron toxicity -- have been identified by researchers. They say that in soils where boron toxicity is reducing yields, genetic improvement of crops is the only effective strategy to address the problem.

Australian scientists have identified

the genes in wheat that control tolerance to a significant yield-limiting soil condition found around the globe -- boron toxicity. Published in the journal Nature, the identification of boron tolerance genes in wheat DNA is expected to help plant breeders more rapidly advance new varieties for increased wheat yields to help feed the growing world population.



Image source: Luke Chan/Flickr

Myanmar and IRRI Design Solar Rice Dryer

Myanmar's department of agriculture, along with partner NGOs and IRRI, have designed and set up a solar dryer to protect rice grains from sudden rain, pests and intense heat. Named solar bubble dryer, it was designed by a team of experts from the University of Hohenheim, GrainPro. Inc., and IRRI.

According to Ana Salvatierra, researcher at the University of

Hohenheim, the name comes from the unique characteristics in its design: 'Solar' due to ambient conditions that provide heat from the air that flows inside the dryer and 'bubble' for the dome-like shape of the cover or roof when it is set up. The small ventilator inflates the bubble and circulates air. The airflow then removes water from inside the drying tunnel, where the grains are, and prevents overheat-

ing. To make sure that the grains dry evenly, they are stirred from time to time using a metal roller underneath the dryer. It can dry rice grains to a moisture content level of 10 per cent to 13 per cent, depending on whether the weather is dry or wet. Currently, the solar bubble dryer is being tested in Cambodia, Myanmar, the Philippines, Vietnam, and Africa.



(Image source: IRRI)

Seedcake Extract from GM flax has broad Spectrum Antibacterial Activity

The antibiotic resistance of pathogenic microorganisms is a world-wide problem. To solve this, new antibiotics are needed. Magdalena Zuk and researchers from the Wroclaw University in Poland now study the potential of genetically modified flax in producing antibiotics.

Transgenic flax plants produce compounds with potential antimicrobial activity. An alkali hydrolyzed seedcake extract from flax seeds

was used against several pathogenic bacteria. Results showed the antibacterial activity of the extract which may be due to bacterial topoisomerase II inhibition and genomic DNA disintegration.

The results strongly suggest that seedcake extract is a candidate for antimicrobial action against a broad spectrum of pathogens. It will be an excellent answer to drug resistance in pathogenic bacteria.



Indian Scientists Develop almost 'Seedless' Mango

Researchers at the Bihar Agriculture University (BAU) have borne a fruit that is sweet and juicy – but without a large seed in the centre. The new variety, called Sindhu, weighs







around 200g and is less fibrous than other types of mango. The near seedless variety has been developed from hybrids of mango varieties Ratna and Alphonso. The seed

accounts for less than 10 per cent of the total weight of the fruit, compared to 15 to 30 per cent in other varieties.





Did you know???

-  It takes approximately 1.4 gallons of **Milk** to make 1 gallon of **ice cream**. Fresh **Apples** float because 25 percent of their volume is air. 
-  **Pumpkins** are 90% water.
-  The **Egg** shell may have as many as 17,000 tiny pores over its surface.
-  There are over 500 different types of **Bananas**. That means if you ate a different kind of **Banana** everyday, it would take almost a year and a half to eat every type! 



Calorie Chart

Fresh Fruits		
Type	Quantity	Calories
Apples	Medium, 140 g	81
Banana	Medium, 100 g	105
Cherries	10 beads	49
Grapes	Half a cup	53
Guava	One, 85 g	45
Mango	Half, 85 g	68
Orange	One, 110 g	62
Papaya	Medium	117

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

Question & Answer



Hello, I'm a maize farmer and recently I've been facing some problems in the plants like old leaves are getting yellowish while the plant veins are still green. Leaf branches are getting lean and they are falling apart quite often. What can I do to avoid these to my plants?

Muklesur Rahman, Gaibandha

Dear Muklesur Rahman I understand your problem. It seems you have magnesium deficiency in the plants. To get rid of this situation you can use Magnesium Sulphate from ACI Fertilizer. This fertilizer is applicable in both liquid and dry condition. Usually 6-8 kg of this fertilizer is required for each acre of land. Magnesium helps the tree nodes, petioles become greener and have a great influence in photosynthesis.

WORD Game

Figure out the Fruits from the box!



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

*** To win exciting prizes, take a picture of this page with marked answers and send the picture to biolife@aci-bd.com by 30 August 2014

Winner & Answer of the previous Word Game!!!

Zakia Ferdous, ACI Motors

Asparagus	P	E	U	H	G	Y	K	A	U	C	Q	W	D	T	E
Artichoke	L	V	O	I	A	E	K	I	J	E	C	X	I	O	N
Beetroot	E	K	O	H	C	I	T	R	A	L	N	D	G	O	V
Bell	S	N	S	R	H	F	H	U	B	E	Z	D	H	R	O
Broccoli	M	U	V	P	S	Y	N	F	T	R	I	B	X	T	N
Cabbage	A	W	G	W	R	G	X	L	B	Y	E	Z	V	E	U
Celery	Z	W	Q	A	M	O	Z	W	L	V	M	K	E	O	
Sprout	A	B	H	L	R	C	U	E	L	N	I	V	O	B	Z
	I	C	K	Y	C	A	M	T	C	I	L	G	Z	J	P
	K	A	A	O	V	H	P	T	S	Z	G	T	K	H	N
	X	M	R	O	B	S	W	S	G	B	I	M	N	H	Y
	V	B	Y	X	T	W	Q	K	A	P	H	U	C	K	R
	C	A	B	B	A	G	E	N	I	M	J	A	M	I	E
	U	W	N	R	E	C	Y	N	K	J	H	B	M	P	R
	F	N	B	O	T	M	Y	E	N	S	R	R	E	K	U

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