# BIOLIFE

Letter from Executive Director, Agribusiness

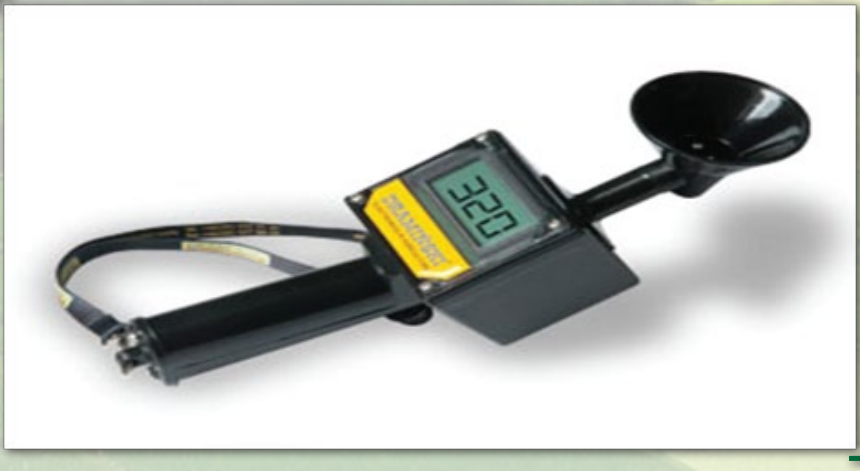
Volume 01 Issue 32 January 2015

## Mastitis Detector - Innovative Equipment to Diagnose Mastitis

Mastitis is one of the most devastating diseases of dairy cattle that has tremendous negative impact in the dairy industry. It is the inflammation and swelling of the udder of cow and results in severe pain. Economic consequences of mastitis include reduced milk yield, poorer quality milk, increased culling rate and increased cost of veterinary services and medicine.

The impacts of Mastitis are far reaching and can result to loss of milk production; milk production can even be impaired. The most alarming fact is it doesn't remain confined to just one cow; it spreads throughout the entire herd. Losses caused by mastitis are estimated to be on average Tk.15,000 per cow annually. Annual losses are due to the following:

| | |
|---|---|
| Decreased milk | 70% |
| Discarded milk | 10% |
| Replace meat lost | 8% |
| Decreased sole value | 5% |
| Drug therapy | 4% |
| Veterinary service | 2% |
| Extra labor | 1% |




In order to prevent Mastitis, first requirement is to detect it properly. ACI Animal Health has come up with the 'Mastitis detector' which helps to detect this disease in the subclinical stage. It is a portable and user friendly device that doesn't require the use of any chemicals, hence allows top quality milk production. It helps in effective prevention through fast udder condition monitoring and through that accelerates the decision about treatment. It can help reduce the huge economic losses which comes with the Mastitis disease. This detector is an investment for years and simultaneously it reduces the cost of keeping the dairy cattle in good health condition. We believe, this innovative equipment from ACI will help the industry develop and bring economic benefit to the farmers.

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## Tolerance to Salinity Leads to Better Yield

**Prof. Lutfur Rahman**
**Advisor, ACI Agribusiness & Head of Advanced Seed Research & Biotech Centre**

We are losing our farmland day by day because of the increased amount of salinity in soil that triggers the climate change and the other man made circumstances. In every minute about three hectares, or 7.4 acres, of usable land from conventional farming area is being captured by soil salinity. Approximately 7% of the world's land including agricultural lands is affected by either salinity or sodium toxicity. Production in over 30% of irrigated crops and 7% of dryland agriculture worldwide is limited by salinity stress. Crop irrigation is increasing soil salinity, owing to trace amounts of salt in irrigation waters. This affects the agricultural sector and charges many billions of dollars each year and jeopardizes the ability to meet the target of feeding 9.3 billion people by 2050.

Plant plasma membrane transporters in the HKT family transport sodium (Na+) and potassium (K+) play an essential part in salt tolerance. Research in the reference plant Arabidopsis showed that the 'class 1' HKT transporters are Na+ selective and protect plant leaves from salinity stress by prohibiting toxic sodium's over-accumulation in leaves. Class 1 HKT transporters are expressed in veins that connect nutrient flux between roots and leaves. These transporters are expressed in the living cells surrounding the xylem, which are vessels that carry nutrients and water to the leaves. Class 1 HKT transporters remove excess Na+ from the xylem in Arabidopsis and rice, thereby keeping Na+ below toxic levels in the photosynthetic leaf tissues. Analogous mechanisms have been demonstrated in wheat for the HKT1;4 and HKT1;5 genes. Remarkably, the recent introgression of an ancestral form of the HKT1;5 gene from the more Na+-tolerant wheat relative Triticum monococcum into susceptible commercial durum wheat (Triticum turgidum sp. durum) increased grain yields on saline soil by 25% in the field, illustrating the immense potential of this mechanism. Some crops are salt tolerant through the effective sequestration of Na+ in leaf vacuoles by Na+/H+ antiporters. Specific 'class 2' HKT transporters mediate cation influx into roots. These class 2 HKT transporters, together with transporters that sequester sodium and potassium in the vacuole have the potential to improve the production of cereals such as barley, a species that copes with high Na+ loads in leaves by compartmentation in the vacuole. Thus combining (pyramiding) HKT transporter traits with vacuolar Na+ sequestration mechanisms provides a potentially powerful platform for molecular breeding and transgenic approaches to improve the salinity tolerance of crops.

The scientists, in the highly prestigious journal *Trends in Plant Sciences*, propose a new concept for breeding salt-tolerant plants as a way to contribute to global efforts for sustainable food production. Professor Shabala suggests learning from the nature and doing what halophytes, or naturally salt-loving plants, are doing, taking up salt but depositing it in a safe place-external balloon-like structures on the leaf surface called salt bladders. In his opinion this could add a new and very promising dimension to breeding salinity-tolerant crops. This is an untapped resource, and we are in a unique position to make a good use of it. Professor Hedrich, from the Institute for Molecular Plant Physiology and Biophysics, in Wurzburg, Germany, said that the researchers already know about the key genes required to grow trichomes, or outgrowths of a plant. If they learn to activate those that trigger the developmental shift from an ordinary trichome to a salt bladder, one may be able to grow external salt depots on any crop. The authors are confident about the researchers' ability to identify the molecular transporters involved in salt loading within salt bladders as well as the developmental switches that are involved. Assuming this work receives an adequate financial support, truly salt-tolerant crops may become abundantly available in a few years' time.

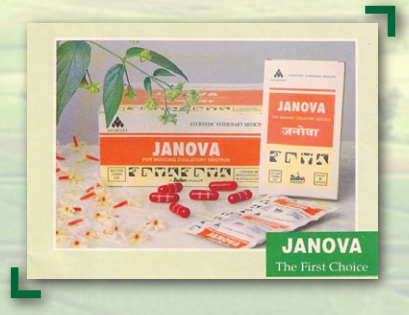
# Innovations and New Products

## Sangrovit® Extra - Feed Additive to Increase Animal Production

Sangrovit® Extra is the feed additive in intelligent quality launched on 4 December 2014 by ACI Animal Health. It can be used for all animal species and contains special components of medical plants. Sangrovit® Extra is the perfect tool for optimizing the intestinal management for animals. Taking Sangrovit® Extra into the feed helps to keep the animals healthy, to improve their performance level and to increase the efficiency of animal production. It works through enhancing appetite, reducing of harmful mechanisms induced by various stressors, and fewer lesions on the intestinal mucosa. It improves health by a unique ratio of alkaloids, and higher availability of essential amino acids, nutrients, improved nitrogen utilization and digestion. In brief, using it will ensure more return on investment for farm owners. Sangrovit® Extra is produced in micro-granulate form by famous German company Phytobiotics with standardized active ingredients and under strict quality criteria.

## Janova - Herbal Estrous Inducer that Prevents Hormonal Disturbances

Janova is a scientific combination of medicinal herbs which mimic the action of gonadotropins and synchronies the release of physiological hormones for inducing ovulatory oestrus and regulating ovarian functions. It contains herbs like Citrullus colocynthis, Piper longum, Piper nigrum, Zingiber officinale etc. Hormonal disturbances are quite complex in nature & lead to various disorders. These can lead to cystic ovaries, failure of estrus & repeat breeders due to failure of ovulation. Janova is better to manage these as it is scientifically formulated with potent herbs, capable of inducing ovulatory estrus and non-hormonal hence safe. It has no interference with milk production and the cost of therapy is substantially less than hormonal therapy. Janova is produced by Ayurvet and launched by ACI Animal Health on 10 December 2014.



# Events and Activities

## Vivid Presence and Remarkable Exposure of ACI Agribusiness in AIRN Fair

ACI Agribusiness participated in the 1st AIRN Agro-Tech Fair-2014 at Town Hall Ground, Jessore. This first ever grand fair in the Southern Region of the country took place from 2 to 4 December 2014. It was organized by USAID, AIRN, CCNA & LIMRA. The purpose of the AIRN Agro-Tech Fair was to display a number of environmentally sound technologies, services and agro-inputs that support enhanced agricultural, fishery, and animal husbandry productivity as presented by domestic and international companies, NGOs, Projects and other fair participants. As country's largest integrator in agriculture, livestock and fisheries, ACI Agribusiness took part & showcased with all its business units in the fair. Moreover, selected dealers of different business units had the opportunity to participate there with full support from ACI Agribusiness. All the stalls exhibited with a focus on modernization of agriculture through quality & cost effective inputs.


## Field day and Demo on new Cabbage Variety to Educate Farmers

ACI Seed has been testing cabbage variety SNC-405 for last two years as an early season variety. This year, it set 10 demonstrations of SNC 405 in Jessore, Jhenidaha and Rajbari districts using a check variety 'Green-60' for their yield stability. The crops were transplanted on 3rd week of October, 2014. The variety SNC-405 was harvested 5 days earlier that of check variety Green-60. The variety yielded 1.22 kg head in 63 days. The head weight and compactness of the variety were also higher than the check variety. All the demo farmers highly accepted the variety SNC 405.

As the variety performed well, a field day on SNC 405, organized by ACI Seed, was held on 14 December 2014 at Abdulpur, Jessore with participation of 75 cabbage farmers, dealers, retailers and sales officers. This ball-shaped variety has high commercial production potential in the coming years.


Cabbage SNC 405

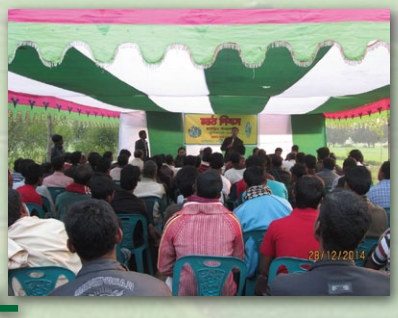
## Events and Activities

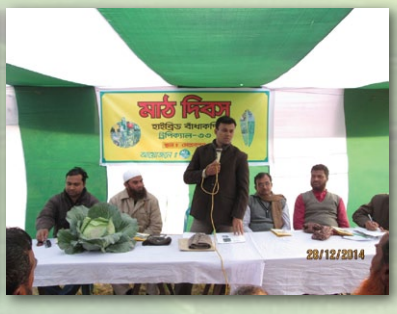
### High Performance Carrot Variety Trialed at Pabna

In Dashuria, Pabna, ACI Seed recently tested one carrot variety named CR-1903 with another check variety (Shidur) for their performance analysis. The seeds were sown on 27 October 2014. The variety CR- 1903 was harvested 5 days earlier with 25% higher yield per root than that of check variety Shidur. The variety CR- 1903 was highly accepted by trial farmers and dealers of ACI Seed. Carrot, especially CR-1903, has greater commercial production potential than any other vegetable there in Pabna region.


### Field Day and Knowldge share with Farmers, Dealers and Retailers in Meherpur

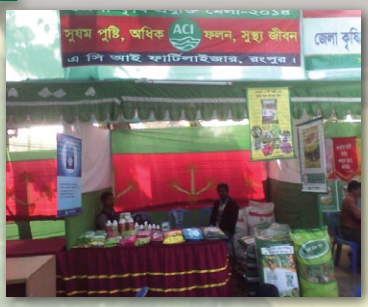
On 28 December 2014, ACI Seed arranged a field demonstration day on cabbage Tropical-33 at Meherpur District. Tropical-33 is a hybrid variety of cabbage which has higher yield within a shorter period of time than the traditional ones. Around 100 farmers as well as dealers, retailers, field force of ACI Seed were present in the demonstration. Participants could learn about comparative benefits and relevant tips of cultivating Tropical-33 cabbage variety from ACI Seed team through interactive discussion and field demonstration. Besides, farmers had the opportunity to ask questions and get answers during the event. The field demonstration was able to make farmers interested in producing this hybrid variety in near future.






### ACI Fertilizer Showcased it's Product in District Agri Tech Fair, Rangpur

ACI fertilizer took part in District Agri-tech fair 2014 at Rangpur organized by Deputy Director's (DD) office, Department of Agriculture Extension (DAE). The fair was held from 30 November to 3 December 2014 at DD office premises. Alhaz Sarfuddin Ahmed Zhantu, Mayor, Rangpur City Corporation inaugurated the program. Representatives from DAE, UAO of DAE, BADC, BINA, BARI, BRRI and different companies were also present on the occasion. ACI Fertilizer showcased its products and interacted with the visitors in its stall during the fair. ACI fertilizer also received a crest from DAE, Rangpur as a token of appreciation.



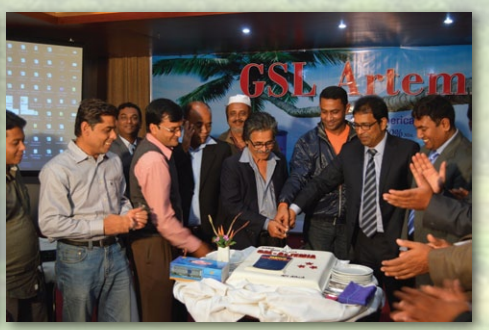

# Events and Activities

## GSL Artemia Launched in Cox's Bazar

ACI Animal Health launched GSL Artemia on 7 December 2014 at 6 PM in Hotel Ocean Paradise, Cox's Bazar. Shrimp hatchery Owners, Technicians, local and international Consultants, Representatives from Government and Non-Government Organizations, World Fish Organization, and Media were present to grace the elegant occasion.

The present market of Artemia in Bangladesh is BDT 400 Million Taka, with a growth rate of 13-17% annually. In 2013, total import of Artemia was around 27,000 kg. ACI Animal Health plans to take 100 million Taka worth Artemia market in 2015. A showroom in Cox's Bazar will ensure product display, sales and create market linkages since most hatcheries are located there. ACI will establish a Laboratory to certify the hatchery owners of their Shrimp Quality (Virus & bacterial contamination) through diagnosis, so that they can also ensure quality Shrimp for export. Moreover, a Service Center will provide technical advice and support free of cost. The attempt will deliver superior value to hatchery owners and farmers in order to produce shrimp to meet national demand and also export accordingly.

ACI Animal Health has imported Artemia directly from Artemia International LLC; a leading supplier from USA. This initiative of ACI Animal Health will accelerate overall fish production in Bangladesh and ensure its continuous growth in future.





## ACI Motors Reached New Sales Milestone

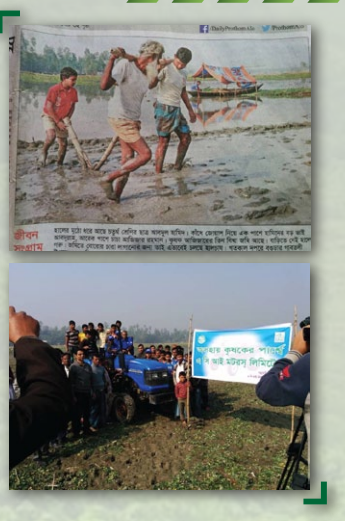
ACI Motors hit the remarkable milestone of 28 Crore Taka in sales during November 2014. This, so far, has been the biggest sales ever achieved by the business which has been relentlessly providing modern agriculture machineries to farmer since 2007. ACI Motors has earned the trust of farmers faster by providing them with high-quality products at affordable price, acceptable loan facilities, after sales service within 6 hours anytime, anywhere in Bangladesh. ACI Motors Team along with all other units of ACI Agribusiness celebrated the grand success on 4th December, 2014 in ACI Centre.

Achieving this milestone is a recognition of ACI Motors from all stakeholders including dealers, customers and farmers. On this pleasant occasion, ACI Motors reaffirms its commitment towards customer satisfaction.

## Events and Activities

### ACI Motors Extends Hand to Peasants in Bogra

Based on a recent report about the struggle of a poor farmer Mr. Azizar Rahman published in a prominent national daily newspaper, ACI Motors extended its support by arranging a day long free plowing program at Nondigram, Gabtoli, Bogra. The program took place on 23 December 2014, just within a day after the report was published. ACI Motors' Sonalika Tractor had plowed around 50 acre farmlands during the event. Mr. Shamim Ahmed (Asst. SM), Mr. Majhar (TM), Mr. Yeasir Ibne Ashab (Sr. PDE) from ACI Motors, other service personnel and high officials of TMSS (NGO) were present in this program. Local Commissioner, farmers, representatives of electronic and print media were also present. ACI Motors hopes that such an initiative will reduce the destitute of farmers like Mr. Azizar Rahman.

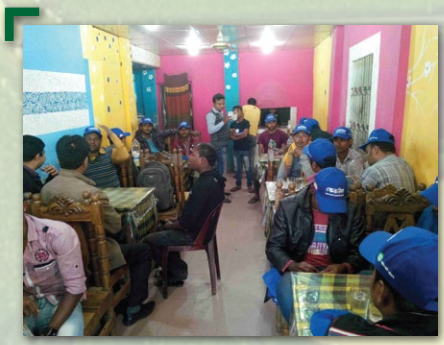


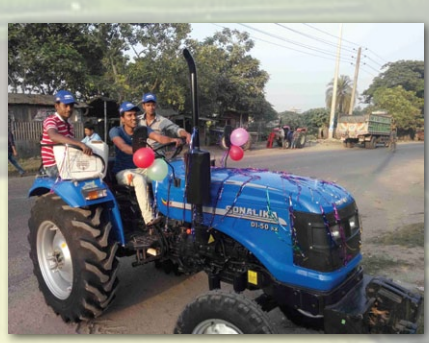
### ACI Motors at Spare Parts Fair, Dhaka

On 21 December 2014, ACI Motors participated in Spare Parts Fair organized by Machineries Foundation at Wari, Dhaka. Chief Guest Mr. Amir Hossain Amu, Honorable Minister of Industries and Special Guest Mr. Mikio Hateada, Chief Representative of JICA were present on the occasion. The guests as well as other visitors had the opportunity to observe and learn about different spare parts offered by ACI Motors. The main goal of the fair was to promote the uses of genuine parts for increasing the life of machineries.

### Halkhata and Spot Meeting by ACI Motors

On the eve of the New Year, ACI Motors arranged Halkhatas in Dinajpur & Jessore during December 2014. Halkhata, a traditional Bengali program, marks the opening of new financial records book while locking the old ones. During the programs valued customers of ACI Motors came, met and cleared their dues as like the traditional Halkhata ceremonies. They were greeted with sweets and refreshment. The Halkhatas took place on 21 December at Setabganj (Dinajpur), 22 December at Birampur (Dinajpur), 23 December at Dinajpur and on 24 December at Jessore. On a different occasion, ACI Motors team also had a spot meeting with Tractor drivers on 18 December at Comilla.





## New Corporate Clients of ACI Cropex

In December 2014, ACI Cropex has provided sea fish to 3 different restaurants of Dhaka. These restaurants are - Firehouse steaks & More, Luams Thai fast food, and Urban Spice Indonesian fusion cuisine. The customer feedback was very good as they found it very fresh and tasty. Moreover, ACI Cropex started to provide green vegetables, fish, and rice to retailer chain-shop Agora.

## Post-harvest Management Training on Vegetables

ACI Cropex arranged a training with Katalyst and Swisscontact at Shampur in Meherpur District. The training took place on Sunday, 28 December 2014. Local vegetable farmers participated in the training. From the session, participants could learn about modern post-harvest management of different vegetables such as cucumber, cabbage, brinjal etc. Moreover, they had the opportunity to know about the ACI Cropex wholesale points and its overall services for them at Kawranbazar, Dhaka.

## Events and Activities

### Workshop on Advancing Market Responsive Agriculture

Center for Development & Competitive Strategies Ltd. (CDCS Knowledge Institute) organized a workshop on 'Advancing Market Responsive Agriculture and Agribusiness Education in Bangladesh' with the support of Katalyst on 22 December 2014.

The objective of the workshop was to discuss the current and emerging market opportunities for agriculture and agribusiness graduates, researchers and academia, the challenges faced by agricultural academia and the current and potential participation of the private sector in advancing market responsive agriculture and agribusiness education. Participants discussed about the importance of building a curriculum which will provide proper learning materials, updated syllabus, practical lessons, field trips, improved exam evaluation and internship programs for students. Academic institutions and private companies can collaborate to ensure an improved course curriculum and arrange job fairs and workshops to help promote agribusiness education in Bangladesh.

The workshop was moderated by Prof. Sheikh Morshed Jahan, Mission Leader, CDCS Knowledge Institute. The participants of the workshop included representatives from the Bangabandhu Sheikh Mujibur Rahman Agricultural University, Sher-e-Bangla Agricultural University, Sylhet Agricultural University. Dr. F. H. Ansarey, Executive Director of ACI Agribusinesses and Fawzia Yasmeen, General Manager of M.M. Ispahani Limited also took part in the workshop.

### RU-ACI Collaboration in R&D

The demand for rice is constantly rising in Bangladesh with nearly 2.3 million people being added each year to its population of about 160 million. Increase in rice production must be achieved at a faster rate in comparison to other countries, whereas the land for rice plantation is not expanding. Moreover, Bangladesh is faced with production constraints such as drought, lack of irrigation facilities, flooding and salinity of soils, coupled with fluctuating commercial price rises. Moreover, the rice sector is by far the most important provider of rural employment.

Future growth in rice production will have to come from expansion of irrigated areas, use of new high yielding varieties, more fertilizer input and improved crop management practices.
To achieve such growth, a key factor will be research carried out in collaboration. ACI started a research in collaboration with Rajshahi University in the year 2014. In the same year the duo has tested 18 IRRI germplasm ofAman rice and found 3 germplasm suitable in terms of disease resistance and yield. In the year 2014-15 we are again testing 33 IRRI germplasm of Boro rice. These germplasms are at seedling stage.

Rajshahi University is equipped with laboratory facilities on biotechnology and genetic engineering. The research in the University encompasses a wide range of discipline extending from Biology to bio engineering and focuses largely on improving crop varieties which are tolerant to drought, floods and salinity. On the other hand ACI agribusiness has an enriched biotech laboratory with proficient researchers. This collaboration works as a catalyst to explore new ways, to learn and to lead in the agricultural sector of Bangladesh.

## Collaborative Research Between ASRBC and BSMRAU Develops New Papaya Varieties

Three papaya varieties including one OP, one improved line and a hybrid has been developed through collaborative research between the Advanced Seed Research and Biotech Centre (ASRBC), ACI Limited and Bangbandhu Sheikh Agricultural University (BSMRAU). The fruits of each line can be used as vegetables.

The open pollinated variety is a gynodioecious species where 50% of the population is female and the other 50% are hermaphrodites. 100% plants in a population bears fruits and each plant can bear 20-25 fruits weighing 1-1.5 kg each. Around 60-80 ton/ ha can be harvested from this variety.

The second variety is an improved line where average weight of each fruit is 0.8-1.2 kg. 100% plants in a population bears fruits and each plant can bear about 25-30 fruits.

The third is a hybrid variety, where again 100% population bears fruits. Each plant can around 35 fruits. Apart from having high vigor, one of the main characteristics of the variety is that it is early. The fruits weigh about 1-1.5 kg and around 100 ton/ha can be harvested. The ripened fruits have yellow colored flesh.

## Gene for Limiting Arsenic Accumulation in Plants Revealed

Arsenic is a carcinogenic element which makes it dangerous for human health. Plants accumulate this element due to its presence in soil and water. Naturally, plants have the ability to control the level of the accumulated arsenic by converting arsenate to arsenite through chemical reduction occurring in the roots. The arsenite is then transported to the shoot through phosphate transport system. This conversion provides the key for the detoxification process of arsenic. A group of international scientists from University of Aberdeen, Chinese Academy of Sciences, Nanjing Agricultural University, and Rothamsted Research studied this process to find the gene responsible for it.

By the use of genome-wide association mapping in Arabidopsis thaliana, they were able to reveal the gene needed for the conversion process. The scientists named High Arsenic Content 1 (HAC1) as the gene mainly responsible in the chemical reduction process. This gene encodes the enzyme, arsenate reductase, that converts arsenate to arsenite. Removal of this gene in plant causes an increased concentration and accumulated of arsenic levels in the shoots.This further testify the importance of this gene in the conversion process. Identification of this gene is necessary in breeding new varieties of crop with less arsenic accumulation.

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

## Vermicompost Leachate Improves Tomato Growth

Worldwide, drought conditions, extreme temperatures, and high soil saline content all have negative effects on tomato crops. These natural processes reduce soil nutrient content and lifespan, result in reduced plant growth and yield, and ultimately translate to lower profits for tomato producers. As an alternative to unsustainable practices such as the use of synthetic fertilizers, producers are looking to environment-friendly soil ameliorants such as verimcompost leachate, an organic liquid produced from earthworm-digested material and casts that occur during the vermicomposting process.

"Earthworm casts present in vermicompost contain proteins, vitamins, and micro- and macro-elements such as nitrogen, phosphorus, potassium, calcium, and magnesium," explained Johannes Van Staden, lead author of a recent study published in HortScience. Van Staden and colleagues Mayashree Chinsamy and Manoj Kulkarni, from the Research Centre for Plant Growth and Development at the University of KwaZulu-Natal Pietermaritzburg, studied the effects of vermicompost-leachate (VCL) on tomato seedlings subjected to various temperatures and levels of water stress.

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

## OK With GM If It Improves Safety or Nutrition

New research from North Carolina State University and the University of Minnesota shows that the majority of consumers will accept the presence of nanotechnology or genetic modification (GM) technology in foods -- but only if the technology enhances the nutrition or improves the safety of the food.

"In general, people are willing to pay more to avoid GM or nanotech in foods, and people were more averse to GM tech than to nanotech," says Dr. Jennifer Kuzma, senior author of a paper on the research and co-director of the Genetic Engineering in Society Center at NC State. "However, it's not really that simple. There were some qualifiers, indicating that many people would be willing to buy GM or nanotech in foods if there were health or safety benefits."

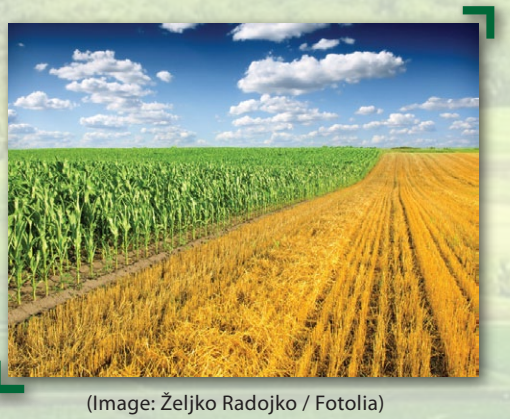
(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

## Boosts in Corn Crops Modify Carbon Dioxide Cycle

Each year in the Northern Hemisphere, levels of atmospheric carbon dioxide drop in the summer as plants "inhale," then climb again as they exhale after the growing season. During the last 50 years, the size of this seasonal swing has increased by as much as half, for reasons that aren't fully understood.

Now a team of researchers has shown that agricultural production may generate up to a quarter of the increase in this seasonal carbon cycle, with corn playing a leading role. "This study shows the power of modeling and data mining in addressing potential sources contributing to seasonal changes in carbon dioxide," says Liz Blood, program director for the National Science Foundation's MacroSystems Biology Program, which funded the research. "It points to the role of basic research in finding answers to complex problems."

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



(Image: Željko Radojko / Fotolia)

## Age Matters: Young Larvae Boost Pollen Foraging in Honey Bees

Toddlers and tweens have very different needs, which influence how parents provide for them. The same is true in honey bees, but instead of communicating their needs via language, honey bee larvae emit chemical signals called pheromones that influence the behavior of their caregivers.

As larvae age, the diet they're fed changes. So too do the pheromone signals they emit. In a paper published in the advanced online edition of the journal Animal Behaviour, ASU alumna Kirsten Traynor, a research associate with the University of Maryland, Robert E. Page Jr., ASU university provost and professor in the School of Life Sciences, and Yves Le Conte, a researcher with Institut National de la Recherche Agronomique, show that adult bees foraging for food use the changing pheromone signals of the young to adjust what nutritional resources they collect.

Honey bees were found to return to the hive with one and one half times more protein-rich pollen, when exposed to young larvae as compared to old larvae. The researchers also discovered that significantly fewer foragers return home empty -- a finding that Traynor believes could have an impact in agricultural enterprises.

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

## Bitter Food but Good Medicine from Cucumbers

High-tech genomics and traditional Chinese medicine come together as researchers identify the genes responsible for the intense bitter taste of wild cucumbers. Taming this bitterness made cucumber, pumpkin and their relatives into popular foods, but the same compounds also have potential to treat cancer and diabetes.

"You don't eat wild cucumber, unless you want to use it as a purgative," said William Lucas, professor of plant biology at the University of California, Davis and coauthor on the paper published in the journal Science.

That bitter flavor in wild cucurbits -- the family that includes cucumber, pumpkin, melon, watermelon and squash -- is due to compounds called cucurbitacins. The bitter taste protects wild plants against predators.

The fruit and leaves of wild cucurbits have been used in Indian and Chinese medicine for thousands of years, as emetics and purgatives and to treat liver disease. More recently, researchers have shown that cucurbitacins can kill or suppress growth of cancer cells.

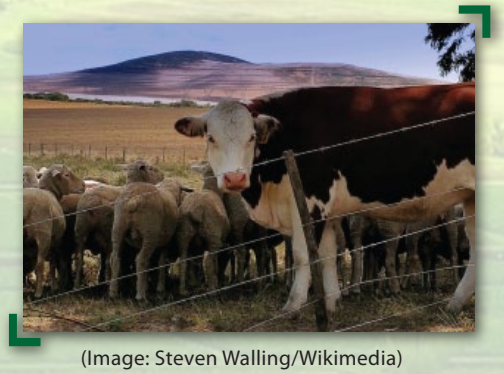
(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

## App to aid Australian Livestock Farmers

Agricultural research firm Meat and Livestock Australia (MLA) has launched an app to help the farmers buy and sell their livestock. The research firm said that the app would collect a range of timely information relevant for buying and selling of livestock, which farmers could use for their daily operations.

Damon Holmes, operations manager at MLA, added, “The app has more than 3,000 users. It is quite easy to navigate through the application on the phone. The app collects livestock reports from the international and the local markets, which are updated daily.” It also features a news section, which keeps the farmers updated with all the local and international livestock news, added Holmes.

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



(Image: Steven Walling/Wikimedia)

## New Cotton Genome Released to Public

Scientists from Texas Tech University, Bayer CropScience, and the National Center for Genome Resources (NGCR) have developed the annotated draft genome assembly from the Asian/African cotton species (Gossypium arboreum), a representative of the cotton A-genome lineage. The A-genome species gave rise to spinnable fiber, eventually leading to the present-day textile industry. The development of high-quality genome sequence presents an exceptional view into the structure of the A-genome, which will hasten research efforts for the improvement of commercial cotton.

The draft sequence is submitted to Genbank, an open-access database of publicly available nucleotide sequences and their protein translations.

(Source: Institute Of Agricultural Science For Southern Vietnam. www.iasvn.org)

## Scientists Release Family Tree of Birds

A consortium of scientists released the most comprehensive family tree of birds ever reported, containing genetic information from 48 species showing how modern bird lineages arose and flourished after the mass extinction that killed the dinosaurs.

The study elucidated the evolutionary relationships of modern bird groups and revealed some genetic information on bird traits such as singing, toothlessness, colorful feathers, and color vision. The research found singing evolved independently in songbirds, parrots, and hummingbirds and showed that the set of about 50 genes involved in birdsong is similar to those involved in human speech.

The species included penguins, falcons, eagles, woodpeckers, owls, vultures, pelicans, cranes, crows, hornbills, cormorants, hummingbirds, pigeons, ducks, chickens, turkeys, ostriches, finches, loons, flamingos, swifts, and even the White-throated Tinamou.

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

## Believe it or not!

- Through about 17,000 tiny pores over its surface, an **Egg** can absorb flavors and odors.
- Each worker **Honey Bee** makes 1/12th teaspoon of Honey in its lifetime.
- There are 914 different breeds of **Sheep** in the world.
- Each tassel on a **Corn** plant releases as many as 5 million grains of pollen.
- **Apples** are a member of the rose family.

## Calorie Chart

**Fresh Fruits**

| Type | Quantity | Calories (Kcals.) |
|---|---|---|
| Potato | 100 gm | 97 |
| Onion | Half cup (sliced) | 23 |
| Peas | Half cup (fresh boiled) | 55 |
| Carrot | Half cup/1 fresh | 25 |
| Cucumber | 6 slices | 5 |

**Source: www.nriol.com**

### 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.

***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.**

## Sharing is Caring!

The following pictures were featured in a Bengali National Daily recently. Do you have any idea where these buildings with 'living walls' are located? You will be surprised to know that, the buildings are at Rangpur in Bangladesh. These beautifully green buildings are used as regional office and guest house of an NGO in the divisional city.

Living walls are now a growing trend worldwide. They are also referred to as green walls, vertical gardens or in French, mur végétal. The French botanist and artist Patrick Blanc was a pioneer by creating the first vertical garden over 30 years ago. Green walls or living walls are vertical structures that are attached to the exterior or interior of a building. Creeping fig (Ficus pumila) vine, also known as fig ivy, creeping ficus and climbing fig, is one of the popular plants used to cover the walls in this regard.

Did you see a nearby 'Living Wall' recently?

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