BIOLIFE

Letter from Executive Director, Agribusiness

Volume 01 Issue 31 December 2014

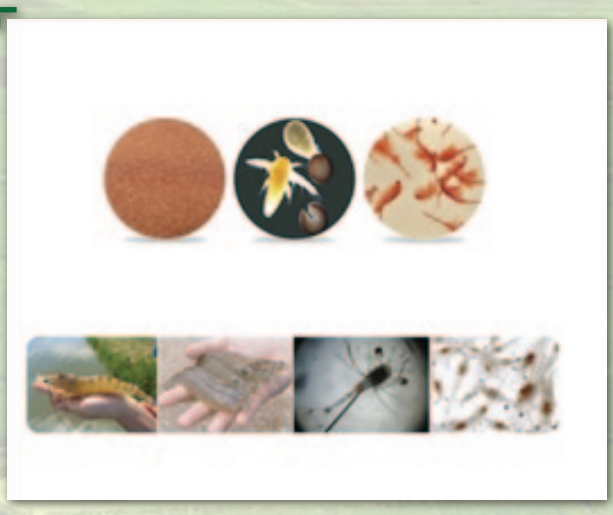
New Feed to Enhance Shrimp Production: GSL Artemia

Bangladesh currently holds 4th position for fish production in the world, says a recent FAO report. As for fish export, Shrimp has a large portion and is the 2nd largest exporting product of the country. Shrimp is known as White Gold, since it brings foreign currency and develops the economic climate viability of the fisheries sector.

In order to produce Shrimp, it is essential to provide quality feed to improve growth, weight and taste. Artemia eggs, commonly known as cysts are extensively used worldwide as Shrimp feed. It can be hatched immediately or stored for long period to provide a convenient form of live feed to the shrimp. The highest quality of Artemia cysts is naturally produced in the great salt lake of USA.

The major benefits of Artemia cysts are:

- High protein value (up to 71%)
- Nutrition composite includes high amount of Lipid, Fatty acid and Carbohydrate
- Farmers can hatch easily as per need
- Hatching percentage is also high (above 80%)



The present market of Artemia in Bangladesh is BDT 370 Million Taka, with a growth rate of 13-17% annually. In 2013, total import of Artemia was around 27,000 kg. To ensure that farmers' get best quality feed for Shrimp, ACI Animal Health has recently imported Artemia Cysts directly from Artemia International LLC; a leading supplier from USA. The attempt will deliver superior shrimp feed to hatchery owners and farmers, so that they can produce shrimp to meet national demand and also export accordingly. This initiative of ACI Animal Health will accelerate overall fish production in Bangladesh and ensure it's continuous growth in future.

BIOLIFE

Contents

3

Improved Indigenous Potato Varieties: Increases Farmers' Benefit

Frequent climate change, increasing population and occurrence of natural disasters, pose threat to food security.

4

CTCzyme – A Poultry Digestion and Metabolic Energy Enhancer

CTCzyme increases immunity, egg production and egg mass of laying hens.

5

Japanese Investor Visit in ACI Centre

On 17 November 2014, ACI Limited organized a conference titled "Bangladesh Calling" where a team of 50 delegates from Jetro Japan visited ACI Centre to explore potential investment opportunities in Bangladesh.

9

Photosynthesis `Switch` Increases Rice Yields by 30%

Scientists from the University of Arkansas have found out that they can harness photosynthesis to increase rice yields by up to 30 percent.

Improved Indigenous Potato Varieties: Increases Farmers' Benefit

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

Because of climate change, increasing population and frequent occurrence of natural disasters, food security has become a crucial issue. To face this situation, increased food supply has become a priority in the world's development agenda. In terms of nutritional value, adaptability to diverse environments and yield potential, the potato is a preferred crop, especially in developing countries. According to FAO statistics, potato production in developing countries has increased by 94.6 percent over the last 15 years. Bangladesh is also one of the countries where, availability of good quality seeds along with the adoption of proper agricultural management has led to bumper production of potato.

The potatoes mentioned above are mostly modern varieties such as Cardinal and Diamant, which has been introduced to Bangladesh in early sixties and are being grown at commercial levels successfully with seeds being imported every time from outside companies. The problem with these commercial modern varieties is that, they are all sown and harvested at close time distance and thus also enter the market at the same time. This leads to market glut and thus low prices to the producers. Potato is considered as a cash crop and is highly perishables unless well preserved in cold storages, but due to lack of cold storage facilities after bumper harvests, the farmers end up being the losers.

Bangladesh also has Indigenous Potato Varieties (IPV) such as Lal Pakri, Jaam Aloo, Shil Bilati, Ausha, etc. which are mostly grown from farmers' saved seeds in the northern parts of the country. Due to low-quality seeds and archaic agricultural practices, the crop yield performance has eventually diminished. But consumers' demand and quality of these varieties are high.

The Advanced Seed Research and Biotech Centre (ASRBC, ACI), understanding the potential of these varieties, has been improving the yield and quality of the seeds for sustained high yield for past three years. One of the varieties called Lal-Pakri (identified by ASRBC as LalPakri-1) has been purified through various techniques and agriculture management to the point where it is less virus affected, has 3 times higher yield than national average of the same type and storage capacity of up to 3 months after harvest without any loss of quality rather gets higher market price.

The Lal Pakri-1 was also trialed in Patuakhali in the south of the country, where there is almost zero cultivation of this crop. It was found to give quite high yields. Since the IPVs are also cash crops, they can be now grown all over the country and benefit the farmers adopting good quality seeds as well as modern agriculture practices through high yields. Since the potatoes can be stored in normal conditions at the farmers' houses for up to 3 months, they can be sold at the market at a higher price than the modern varieties. The ASRBC believes in the benefits of growing IPVs, has been strongly promoting the Lal Pakri-1 and will continue to do so, while developing other varieties of IPV.

Farmers field at the ACI-IAP-SIDA Intervention program with more than 3200 farm families in Barisal, Patuakhali and Barguna in 2013. Demand for seeds has increased 10 times in 2014

Innovations and New Products

CTCzyme – Poultry Digestion and Metabolic Energy Enhancer

On 8 November 2014, ACI Animal Health launched CTCzyme – a poultry digestion and metabolic energy enhancer manufactured by CTCBIO Inc., South Korea. It improves body weight and feed conversion ratio (FCR) and feed digestibility. CTCzyme increases immunity, egg production and egg mass of laying hens.

EXOLUTION – Superbiotic to Prevent Diseases

ACI Animal Health has also launched EXOLUTION on 8 November 2014. EXOLUTION is called Superbiotics because it is natural and has very low chance of resistance. It contains antibacterial properties and work as bacteriophage. EXOLUTION is effective against diseases like Salmonellosis, Colibacillosis, Necrotic enteritis & Staphylococcosis etc. It improves to maintain an ideal microfloral balance, growth and production. With no residual effect and chance resistance, EXOLUTION creates no damage to beneficial bacteria. It is manufactured by CTCBIO Inc., South Korea.

EXAPAR Liquid – Uterine Cleanser and Restorative

EXAPAR Liquid was lanunched on 12 November 2014, EXAPAR Liquid – uterine cleanser and restorative. EXAPAR is a special mixture of 16 herbs that together in synergy helps the post partum cleaning and regeneration of the uterus by enhancing the timely expulsion of placenta. It can be for expulsion of retained placenta, regulation of lochial discharge, and delayed involution of uterus. EXAPAR is used as an ideal uterine cleansing agent after manual removal or retained placenta. This solution for retained placenta is manufactured by AYURVET.

RUCHAMAX – Herbal and Harmless Growth Promoter

RUCHAMAX is a special combination of herbs and minerals that help to restore the normal functioning of the digestive system and thus improves the absorption of the nutrients, and contributes to better FCR, growth and production. It acts as appetite stimulants, regulates salivary secretions & maintains rumen PH. RUCHAMAX improves fermentation leading to better digestion and increases milk production.

Events and Activities

Japanese Investor Visit in ACI Centre

On 17 November 2014, ACI Limited organized a conference titled “Calling Bangladesh” where a team of 50 delegates from Jetro Japan visited ACI Centre to explore potential investment opportunities in Bangladesh. The Japan External Trade Organization (JETRO) is a Japan government-related organization that works to promote mutual trade and investment between Japan and the rest of the world. The key purpose of this conference was to engage Jetro in investing (FDI) for the development of Bangladesh. The program started with welcoming the delegates with bouquets of flowers. Chairman of ACI Group, M Anis Ud Dowla gave a brief overview Bangladesh and activities of ACI Group. He talked about the history of diversification, gradual growth, development of ACI and the possible benefits of doing business with ACI in Bangladesh. Afterwards, M Muhibuz Zaman, COO, Pharmaceuticals; Syed Alamgir, ED, Consumer Brands; Dr. FH Ansarey, ED, Agribusinesses and Sabbir Hasan Nasir, ED, Logistics showcased their presentations to the visitors to ensure a vivid outlook of the conference. Sessions became interactive with active participation of the audience. Later, the delegates were thanked for their lively presence and they joined the networking and refreshment session.

ACI Seed Meets Farmers’ Association in Khagrachari

ACI Seed arranged a meeting with Gugrachari Farmers’ Welfare Association at Sadar, Khagrachari on 19 November 2014. A total of 20 hilly tribal farmers, mostly 'Marma', attended the meeting. Before the meeting, a field visit on cabbage-Tropical 33, okra- Green soft, bush bean, pea, khirai etc. took place and ACI Seed team observed their problems in the field. The major problem, which was found, was the damping off in bush bean and pea field. In the meeting, ACI Seed team discussed the remedies on these seed-borne and soil-borne diseases. Seed treatment was suggested as a preventive measure for these diseases.

Events and Activities

ACI Fertilizer Signed MOU with IFDC

ACI Fertilizer signed an agreement with International Fertilizer Development Centre (IFDC) on 6 November 2014 in ACI Centre with the aim to extend the activities of Accelerating Agricultural Productivity Improvement (AAPI) Project.

IFDC is a USA based organization working on increasing productivity across the agricultural value chain in developing countries. Under the agreement, IFDC & ACI Fertilizer will work jointly to promote Guti Urea and NPK Guti through demonstration and promotional program in the project area.

ACI Fertilizer will run 200 demonstrations on USG & NPK with products of ACI Fertilizer. 20 Districts and 124 Upazilla are included from Five Agro Ecological Zone (AEZ) under this project.

Retailer Training in Char Areas

ACI Fertilizer & ACI Seed are working jointly on M4C project planned by Swisscontact for the development of farmers in Char area by ensuring quality inputs from ACI. The work is progressing through developing the retail channel to the cultivation of Maize, Chili, Vegetable and Rice.

Under the M4C Project the new technology of Seed and Fertilizer is promoting in Char Area of Bogra, Gaibandha, Sirajgonj, Jamalpur, Kurigram, Lalmonirhat and Nilphamari. ACI Fertilizer organized nine (9) retailer training programs in different areas during the month, November 2014 with the support of ACI Seed. These are - Shariakandi (Bogra), Shaghata (Gaibandha), Kazipur (Sirajgonj), Ulipur, Roumari, Kurigram Sadar (Kurigram), Hatibangha (Lalmonirhat), Dimla (Nilphamari) and Sharishabari (Jamalpur).

Events and Activities

Worskhop With Department of Agriculture Extension (DAE)

ACI Fertilizer participated in day-long workshops with Department of Agriculture Extension (DAE) under Integrated Agricultural Production Project (IAPP) project. One workshop took place in Rangpur on 23rd November and the other in Barisal on 27th November. Total 54 Upazilla Agriculture Officer (UAO) & 8 Deputy Director (DD) were present in the workshops. In these programs, ACI Fertilizer discussed the products and gave a presentation on "Balanced Nutrient, Good Production & Healthy Life".

Through these programs, ACI Fertilizer is working in collaboration with DAE in extension work. Already ACI Fertilizer has started the demonstration of balanced fertilizer in case of Rice, Maize, Wheat, and Vegetables under the IAPP project through DAE to increase the coverage. Business Manager, Sales Manager & Sr. Executive, Institutional Sales of ACI Fertilizer were present in these programs.

Customer Engagement of ACI Motors

ACI Motors continued to extend its customer service and engagement throughout the month of November 2014. On 9 November 2014 a Road Show was arranged in Sirajdikhan, Munsiganj. Besides, ACI Motor arranged a Tractor fair at Ashuganj, Brahmanbaria from 12 to 14 November 2014, where people had the opportunity to see, ask and collect information of different Tractors. Products and services were also showcased in 'Krishi O Projukti Mela' (Agri and Tech Fair) at Nabinagar, Brahmanbaria on 21-22 November 2014.

Events and Activities

New Technology for the Fisheries' Field Forces

ACI Animal Health handed over new equipments to its field technical executives during an in-house event on 6 November 2014 in ACI Center. Executive Director, ACI Agribusiness handed over newly imported EcoMet P15 (pH meter) and EcoMet D35 (DO meter) compact meters to the field force of fisheries section.

Both of the devices come in a smart bag with necessary accessories which are easy to use, fast and accurate. These testing kits are now assisting technical executives, along with the field officers, to effectively measure the state of farming ponds and diagnose necessary requirements for better fish production.

Post-Harvest Management Training on Maize

A training session on post-harvest management of maize was arranged for ACI Cropex staffs in ACI Center. The training took place on Thursday, 13 November 2014. From the session, participants could learn about different aspects of post-harvest management techniques of the crop.

Agri-tech & Communication

Photosynthesis `Switch` Increases Rice Yields by 30%

Scientists from the University of Arkansas have found out that they can harness photosynthesis to increase rice yields by up to 30 percent. Led by Andy Pereira, the research group examined a protein that acts as a "switch" to activate genes that can enhance the photosynthesis activity of rice plants.

The researchers discovered that the protein, known as higher yield rice (HYR), could enable the plants to survive stress, thrive and increase productivity. Pereira said "The regulator HYR does regulate photosynthesis, a complex process. I saw in the greenhouse that the plants using the HYR regulator were much greener than any others. It was because of more chlorophyll, hence, higher photosynthesis."

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

International Team Completes First Orchid Genome Sequence

An international collaboration led by scientists from China, Taiwan, and Belgium, has sequenced the genome of the orchid Phalaenopsis equestris, a favored parental plant in orchid breeding and the first sequenced representative of plants that perform photosynthesis using crassulacean acid metabolism.

The team generated more than 119 billion bases of sequence data, which it used to assemble a 1.086-billion-base draft assembly for P. equestris. They also generated RNA sequence data on the root, stem, leaf, and flower samples of P. equestris to aid in their annotation of the genome and gene expression profiling of the plant.

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

Helping Wheat Defend Itself Against Damaging Viruses

Wheat diseases caused by a host of viruses that might include wheat streak mosaic, triticum mosaic, soil-borne mosaic and barley yellow dwarf could cost producers 5 to 10 percent or more in yield reductions per crop, but a major advance in developing broad disease-resistant wheat is on the horizon.

John Fellers, molecular biologist for the U.S. Department of Agriculture's Agricultural Research Service, and Harold Trick, plant geneticist for Kansas State University, have led an effort to develop a patent-pending genetic engineering technology that builds resistance to certain viruses in the wheat plant itself. And although genetically engineered wheat is not an option in the market today, their research is building this resistance in non-genetically engineered wheat lines as well.

"(Wheat viruses) are a serious problem," Trick said. "Wheat streak mosaic virus is one of the most devastating viruses we have. It's prevalent this year. In addition to that, we have several other diseases, triticum mosaic virus and soil-borne mosaic virus, that are serious diseases."

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

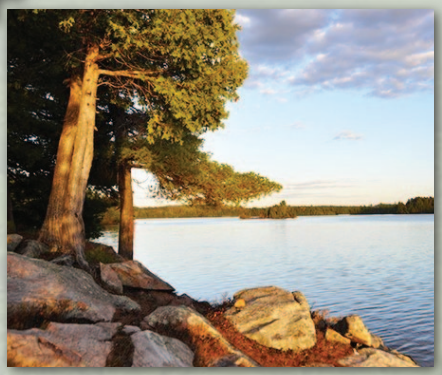
Fish Integration: Nature Adores a Hybrid

A new research from Concordia, Canada published in the journal Evolutionary Applications, shows that after a few generations of breeding and natural selection, hybrid fish are genetically as robust as their purely wild forefathers.

Under the leadership of biology professor Dylan Fraser, the research team -- which included Concordia graduate student Andrew Harbicht and research scientist Chris Wilson from the Ontario Ministry of Natural Resources and Forestry -- headed to Algonquin Provincial Park, a fisherman's paradise of lakes stocked generations ago with hatchery salmon and trout.

The team transplanted combinations of wild, domesticated and hybridized populations of Algonquin Park vbrook trout to new environments. The researchers then compared survival rates and physical characteristics to determine whether hybridization affects a fish's potential to adapt after multiple generations of natural selection in the wild.

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



(Algonquin Provincial Park, Canada-a fisherman's paradise of lakes)

Genetic Toolkit Finds New Maximum for Crop Yields

Scientists at Cold Spring Harbor Laboratory (CSHL) recently announced a new way to dramatically increase crop yields by improving upon Mother Nature's offerings. A team led by Associate Professor Zachary Lippman has discovered a set of gene variations that can boost fruit production in the tomato plant by as much as 100%.

Plant breeders will be able to combine different gene variants among the set to create an optimal plant architecture for particular varieties and growing conditions. The set of mutations will enable farmers to maximize yield in tomatoes and potentially many other flowering plants, including staple crops like soybeans. The breakthrough benefit of the toolkit, says Lippman, is that it allows farmers to customize genetic variations for particular varieties and growing conditions.

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

Smartphone App to Test Seed Quality Launched in Australia

Australian researchers have developed a new smartphone app to help farmers and exporters test the quality of seed.

The app, developed by Seed Services Australia and UniSA information technology students, will reportedly make it easier and faster for clients to receive field inspection and seed testing results.

Seed Services Australia, commercial seed testing and certification business of PIRSA division Rural Solutions SA, is the seed testing and certification provider to Australia's commercial seed industry.

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

(Image source: IRRI/Flickr)

BIOTEC Pilots Flood- and Pest-Resistant Rice Strain in Thailand

Thailand's National Center for Genetic Engineering and Biotechnology (BIOTEC) has piloted a project to deploy the newly developed flood- and pest-resistant rice strain in Ubon Ratchathani Province.

The centre is also promoting low-cost rice farming techniques among local farmers.
According to BIOTEC, the move is designed to help farmers earn at least US$ 3049 per 0.16 ha of rice paddy field with the help of the provided know-how and the new rice strain. The move is reportedly aimed at encouraging the new generation of farmers to engage in organic farming and employ new technologies in their operations.

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

(Image source: Timo Laaksonen/sxc.hu)

BARI Training on Bt Brinjal Production at Rangpur, Bangladesh

On 14 November 2014, farmers were equipped with information on Bt Brinjal production and technology in a training program at Rangpur District. The program was organized by On-Farm Research Division (OFRD) of Bangladesh Agricultural Research Institute (BARI), in collaboration with Agricultural Biotechnology Support Project II (ABSPII). These farmers will grow the crop this year, inspired by the successful commercial production last year. Field level extension officers and workers also participated in the training so that they can guide the farmers during the field production. Around 50 trainees attended the training.

BARI scientists involved in the Bt brinjal field trial and commercial planting last year served as speakers during the training. Dr. Md Rafiqul Islam Mondal, Director General of BARI and Dr. Gour Pada Das, Country Coordinator of ABSPII, also answered the queries raised by the trainees.

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

Believe it or not!

- **Egg** yolks are one of the few foods that naturally contain Vitamin D.
- In one day a **Honey** bee can fly 12 miles and pollinate up to 10,000 flowers.
- Although generally regarded as a tree, **Banana** plant is really an herb.
- If you grew 100 **Apple** trees from the seeds of one tree, they would all be different.
- **Pumpkin** seeds can be roasted as a snack.

Calorie Chart

Fresh Fruits

Type	Quantity	Calories (Kcals.)
Tea	1 Cup (2 tsp sugar & 2 tsp cream)	70
Coffee	1 Cup (2 tsp sugar & 2 tsp cream)	70
Tomato juice	100 ml	40
Orange juice	100 ml	61
Coconut water	100 ml	24

Source: www.nriol.com

Agro Tips

If you are planning to use Nitrogen type fertilizer (Ammonium Sulphate) for farming you may like to know a few things. This type of fertilizers provides necessary Nitrogen which ensures proper growth of crops. It also helps to make leaves greener and grow more leaves. You may apply 15-20 kg fertilizer per acre which may vary slightly based on the type of soil & crops produced. You can apply it to the soil while preparing for farming or in between the growth phase of crops.

***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!

You may have the opportunity to see a roof garden in your neighborhood, especially if you reside in an urban area. Some of you may even have roof gardens in your houses. But if you belong to neither of these two categories, please have a look to these pictures. We believe, you will consider having a roof garden for your house as well.

Basically, a roof garden is any garden on the roof of a building. Besides the decorative benefit, roof plantings can provide food, temperature control, hydrological benefits, architectural enhancement, habitats or corridors for wildlife, recreational opportunities, and in large scale it may even bring ecological benefits. The practice of cultivating food on the rooftop of buildings is sometimes referred to as rooftop farming. You will be surprised to know that humans have grown plants atop structures since antiquity. There are examples from ancient Mesopotamia, Roman, and medieval Egyptian times.

So, when are you starting?

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

www.aciagribusinesses.com