Way to Green Revolution

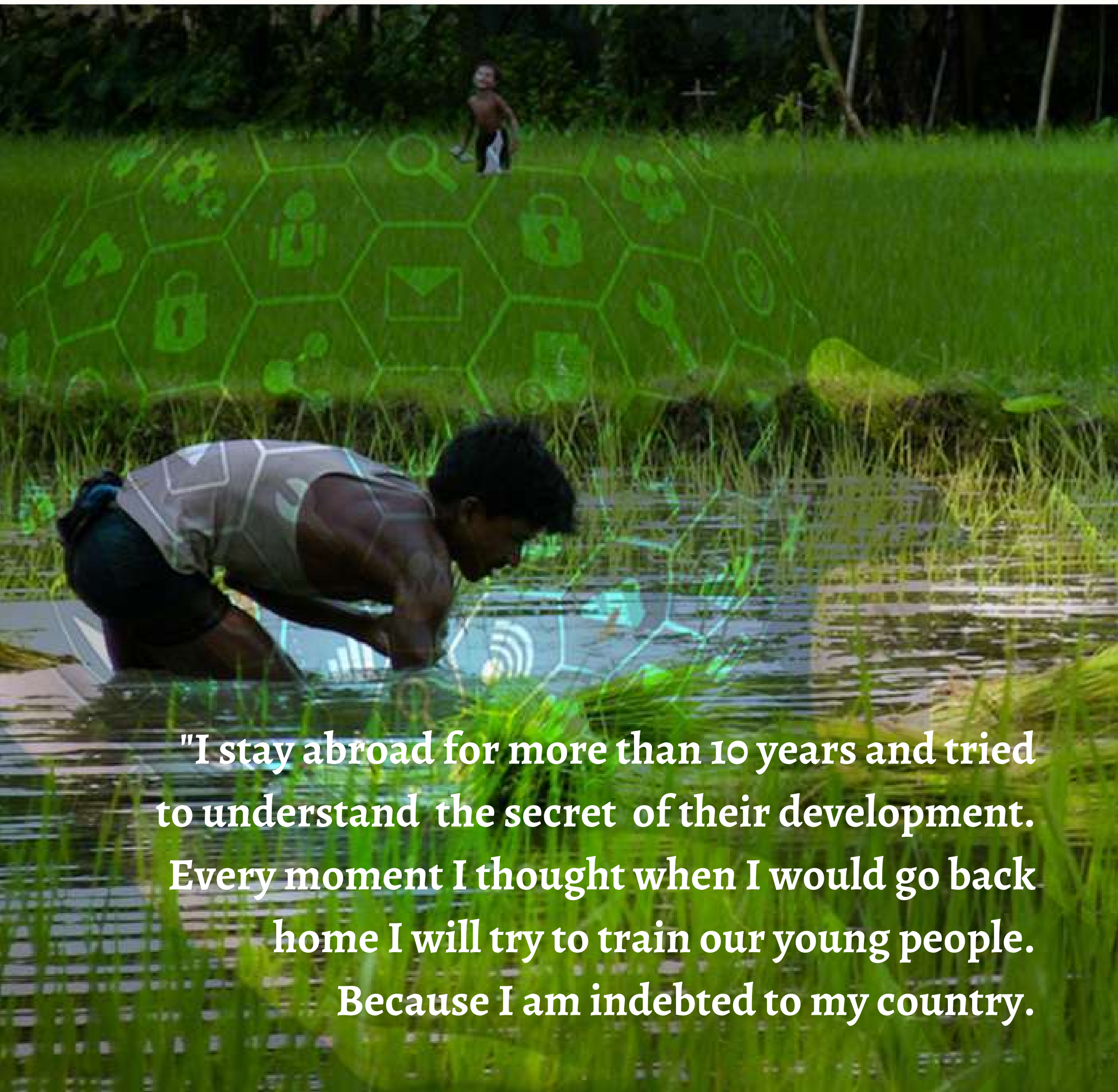
KRISHIKOLPO

IAAS BANGLADESH

August 2020

Highlights

- **The 63rd online WoCo**
- A Great Scientist
- Come to help the flood Affected People
- Farmer, the real hero
- Scope of an Agriculturist
- Crop Probiotics



"I stay abroad for more than 10 years and tried to understand the secret of their development. Every moment I thought when I would go back home I will try to train our young people. Because I am indebted to my country.

YAAS

Bangladesh

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LET'S LINK UP

Agriculture with Science

Dear IAASer!

KRISHIKOLPO comes from a combination of the bengali words **KRISHI** ("agriculture") and **KOLPO** ("thought"). Our dream is to actualize DIGITAL BANGLADESH through agricultural revolution. We want to assemble a common understanding among farmers, scientists as well as students of agriculture and allied sciences. Let's exlpore Bangladeshi Agriculture with **KRISHIKOLPO**.

Best reagrds,

Saleha Khatun Ripta
Vice President of Finance,
IAAS Bangladesh.

Special Thanks

to

Festus Septian Yosafat

IAAS World Vice President of Communication

We are grateful to
IAAS World EBs 2019/20

Best Wishes for
IAAS World EBs 2020/21

Contents

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IAAS Bangladesh

IAAS Bangladesh

iaasbangladesh.weebly.com

IAAS Bangladesh

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IAAS Bangladesh

IAAS Bangladesh

IAAS Bangladesh is a national network of young, motivated people interested in solving the issues that are affecting agriculture, society and the world today and shaping it for a better tomorrow. It was born mainly by thinking of students in agricultural fields. In the same way, Bangladesh also became a member of IAAS in 2017. The Association is non-political and not profit-making. It is made of six local committees: KUAAS and IAAS PSTU, IAAS MBSTU, IAAS SAU, IAAS RU, IAAS HSTU.

Briefly we are presenting

1. No of Connected University: 20
2. No of Local
3. Committee: 02
4. No of ongoing
5. Local Committee: 08
6. No of Programs (Oct'19-June'20): 21
7. No of Connected University: 20
8. No of Registered
9. Members: 350
10. Facebook Group Members: 1250++
11. No of Adviser: 08 (Good Academician, PhD and Post Doc
12. holders and Good Researchers)
13. Future Projection (at the end'20): 10 Local Committee & 1200++ IAAS
14. Bangladesh Members all around the countries

IAAS Bangladesh: List of activities for 2019-2020

1. Expanding local committees into different universities
2. Established IAAS Agri School
3. IAAS Bangladesh: Virtual Library Preparation
4. 2.5MV: Communicating Science
5. Workshop “Hands on different Agricultural practices and Managements”
6. Agri-debate Championship 2020
7. Biodiversity Conservation Campaigning: 2000 Tree Plantation Program
8. Bioentreprenuer workshop
9. National Quiz Competition and Essay writing
10. Expanding local committees into different universities
11. A Seminar on sustainable development through Food security
12. Regional Agricultural Summit
13. IAAS Nutrition Program on schools
14. Workshop on Data collection and Agricultural Research Methodology
15. IAAS Bangladesh Summer/winter School
16. National Youth in Agricultural Carnival (NYAC-2020)
17. IAAS Exchange program between different countries
18. Study tour, visit different fields and research organization

Note: List of Activities Depends On Appropriate Time, Place and Funding.

Online Activities on Pandemic Days (March'20-June'20)

1. Scholarship Program (03)
2. Webinar/ Zoom (03)
3. Awareness Program (03)
4. Article Writing & Idea Competition (02)
5. Fundraising (01)
6. Entrepreneurship Program (01)
7. Workshop (01)
8. Recruitement (01)

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Crop Probiotics: Alternative to synthetic Fertilizer

"We want to support the transition of agriculture towards practices that are based on ecological principles, improve crop health and performance, and reduce the input of agrochemicals that cause damage to the environment and people."–Professor Susanne Schmidt, School of Agriculture and Food Science, The University of Queensland.

More than half the world's plant-derived energy intake comes from just three crops: rice, wheat and maize. These crops, like most land plants, live in an evolutionarily ancient partnership with a certain type of beneficial bacteria, called arbuscular probiotic bacteria. When considering probiotics, we tend to think of the helpful live gut bacteria and yeasts that are good for our digestive system.

Harmful microbes are parasites that infect and steal nutrients from the plants. On the contrary, beneficial microbes not only help plants to fight pathogens, they continually break down organic materials for plant absorption and growth. Some microbes can bind heavy metals, radionuclides, and organic toxins, thus protecting the plants.

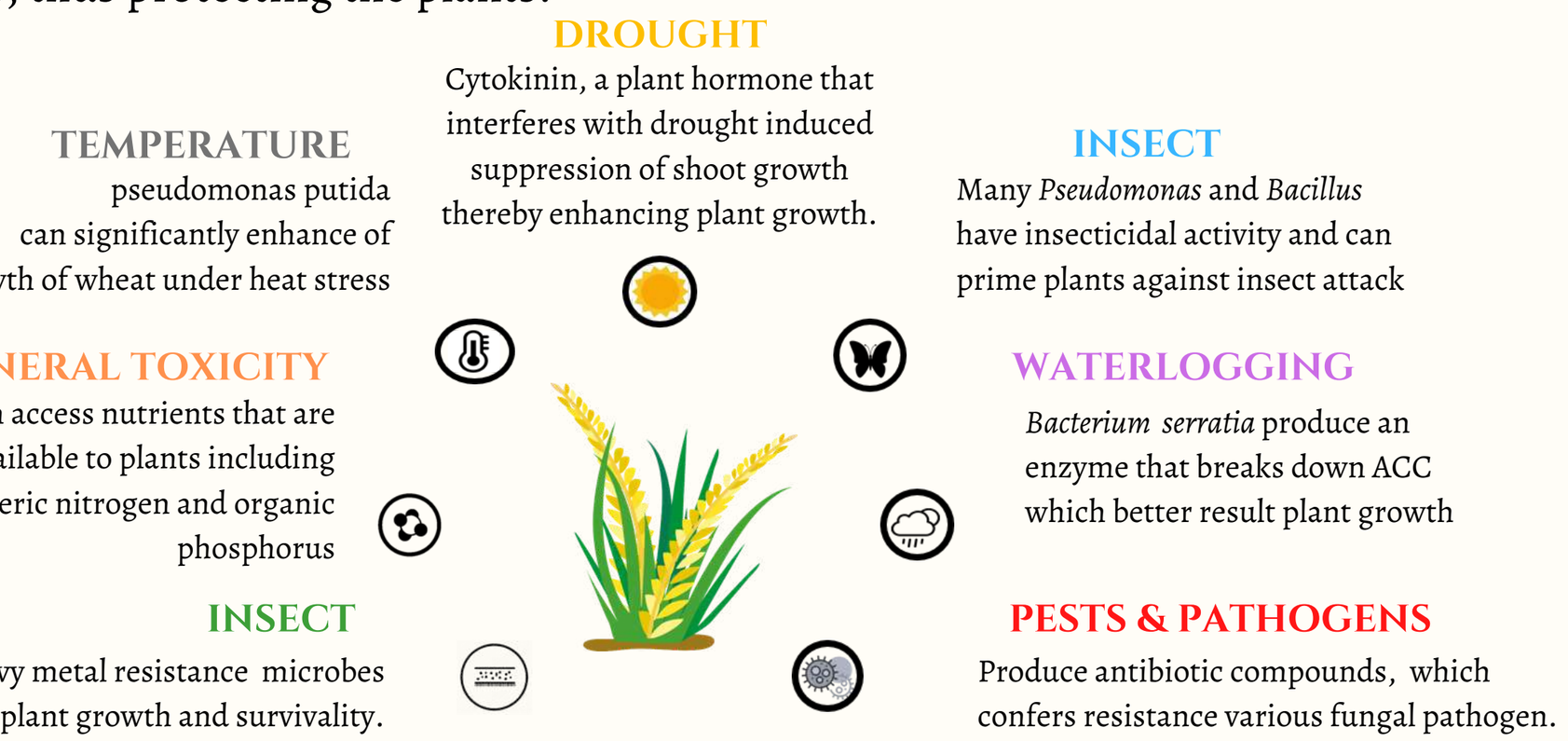

Figure: Confirmed benefits of crop probiotics on plants. Original Credit: Mrs. Shelby Berg.
Note: This picture is reproduce by Md. Tangimul Islam and K.M Salim Andalib.
Source: http://www.uq.edu.au/research/impact/stories/promoting-plant-probiotics/

Probiotics adhere to the roots and feed the crop daily with no leaching. By building up natural resistance in plants, usage of fertilizer and pesticides can be reduced or eliminated. Less agrichemicals means less contamination of our local water supply or surrounding ecosystem, and lower agricultural carbon footprint.

Early supply of probiotics precludes root colonization by pathogenic bacteria, which could also enhance resistance to diseases such as black root rot. Adopting fortified biofertiliser with probiotics seems to be the perfect way to reduce the global impact of fertilizers pollution as well as promoting soil health.

Md.Tangimul Islam,
National Director, IAAS bangladesh

SECRET COMMUNICATION OF PLANTS

Communication is really important for the entire living organism. We have to use different communication method for express our feelings or emotion. Not only human, all animal uses different sign to communicate with others. But what about plants? Do they communicate among themselves? Or do they can change their behavior when they feel crisis? Let's discuss about some story or experiment which give us the answer of these questions.

There is a plant named Daughter vine. They are called the "Count Dracula" of the plant world. From this name we can guess which type of plant is this. It has no roots and cannot produce its own food. So it entirely depends on other plants. This plant uses its tentacle to absorb sap from other plants. But this plant prefers some specific plant rather than others. Specially, they like the Tomato plant most. An experiment was made to know how did this plant know which plant is it? And the result was really remarkable. Experiment says that every plant releases some chemical in the air and they have some specific fragment. As a result tomato has some specific fragment which helps Daughter plant to identify them and use them as host. (DocumFeed, 2014)

Now let's talk about plants movement. They do\not have brain but they still can move. For example we all know that plant grow into the sunlight's direction. As a result they can absorb more energy for their food production. It is an example of slow movement of plant. But there is a plant called Papusa which shows really quick response to the activator.When we touch the leaf of the branch of this plant, they will fall down immediately. Though scientist still cannot discover the reason of this behavior but this might happen to protect themselves from the predators. (TED, 2017)

WE ALL USE MOBILE PHONE TO COMMUNICATE WITH DISTANCE PEOPLE. THIS SYSTEM IS NOT APPLICABLE ONLY FOR US. PLANT ALSO CREATES A NETWORK OF FUNGUS TO COMMUNICATE WITH ONE ANOTHER.

Source: Modern Farmer
https://modernfarmer.com/2013/05/inside-secret-world-of-plant-communication/

Plants also can response when they face danger. When plants face the predator they release a chemical to communicate with other plants. Grass is an excellent example for this. When we cut grasses we smell a fragment coming from grasses. This fragment come from a specific chemical which grasses used to warn the other plants. In one experiment Sagebrush leaf were damaged by insects. But the other side of the plant got eaten less by the insects. Because when one side was attacked, the other side makes a strong chemical protection to protect them from those insects. (TED-Ed, 2016)

We all use mobile phone to communicate with distance people. This system is not applicable only for us. Plant also creates a network of fungus to communicate with one another. We all know michorhyza. It makes a mutual relation with almost all plants. They have mycelium which spread all over the soil as well as inside plants. They as responsible to absorb phosphorus or sulfur and give it to the plant. In exchange of it plants gives carbon based sugar to this fungus to survive. An experiment was made to prove that fungus make a network between the pants. In that experiment radioactive carbon was inserted to a plant. After some days those radioactive carbon was spread amount plants of a huge area. This proves that with fungus plants not only communicate but also share their nutrient with one another. (SciShow, 2018)

Now lets talk about plant and human communication. Though they do not directly communicate with humans but they create some sign to express their feelings. A group of scientist from MIT did an experiment to prove this theory. They use Spinach plant to detect an explosive compound. They use explosive chemical to the soil and after 10 minutes they detect change in infrared light spread from the leaf of spinach plant. This indicates the explosive material in the plant (MIT, 2016) . Plant also use fragment to call insects for their propagation. It helps them to grow their off spring.

So we can see that plant can communicate. They communicate not only with themselves but also with other living organisms as well as human. Though they did not talk with us but there mode of communication is still impressive. A lot of research was done related to plant communication but still we have a lot of hing to know. We hope in future we can see some remarkable research which help us to know more about plants and there behaviors.

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S. M. Kamran Ashraf

Vice President of Communication & Membership,

IAAS Bangladesh

Tasty food from Jackfruit and it's Preservation Pathway

In our country Jackfruit is being a nutritional food it's cannot take the place in food menu like others. We found the reason behind this indifference towards this fruit is that it's only take as Echor and ripen fruit. For this reason farmers cannot get same profits share like others fruits by selling them. But through proper preservation and by making different delicious food from this fruits it can be possible to make it more acceptable.

Attributes of Jackfruits:

In each 100gm of Jackfruits fiber ash have: 24gm carbohydrate, 0.03Mg fat, 34Mg Calcium, 37Mg Magnesium, 303Mg and others vitamins. Raw Jackfruit is effective to release disease as well as it also increases the immune system of body. However, it contains fiber, so taking too much it can cause digestive problems. Those who have diabetic, there are some restriction on eating Jackfruit. In addition, people with kidney disease have high levels of potassium in their blood, It is safe not to eat Jackfruit.

Nutritional Value of Jackfruit:

1.Vitamins A, C & B6:

The vitamins Jackfruits contains, it can be said that it is multiplied. Vitamin A in Jackfruit is good for hair, increase eyesight and reduces eye problem. Vitamin C in jackfruit increases immunity; eliminates asthma, cough, runny nose and cancer.

2.Seed Protein of jackfruit:

Don't throw away the jackfruit seed. The Proteins in it hepls in building muscle. You can drink juice by grinding jackfruit seeds.

3.Cholesterol free good carbohydrate:

Jackfruit is the zero cholesterol food which is safe to eat. People of any age can take it. It's a good souce of energy. It conatins good carbohydrtae You can take it as a snack or as a meal alternative.

3.Removes the age mark:

Jackfruit will hold your age. It prevents wrinkles on face. It is good for skin. The antioxidant in it fight against the free radicals. Jackfruit is rich in calcium and magnesium which can prevent the decay of bone.

4.Reduce weight:

It contains less fat. So there is no risk of gaining weight by eating more.

Food that can be produced from Jackfruit:

Chips:

Production Procedure:

- First of all you collect fully ripened fruit jackfruit, wash it with water and remove the husk
- Then collect the tubers (fleshy part without the seed)and slice them
- Sliced part boil into water for 10 minutes. Then pour into 0.1% KMS (Potassium by sulphate) solution for 15 minutes.
- Then dry well and fry in 70°c temperature until light yellow color. And mix with tasting salt and other spices leave until it is cool.

Preservation:

Keep in foil paper packet at room temperature (28°c-30°c) and the mouth of the packet should be sealed well so that air cannot come in or out.

In each 100gm of Jackfruits fiber ash have: 24gm carbohydrate, 0.03Mg fat, 34Mg Calcium, 37Mg Magnesium, 303Mg and others vitamins.Raw Jackfruit is effective to release disease as well as it also increases the immune system of body. However, it contains fiber, so taking too much it can cause digestive problems.

2.Jackfruit Jam:

Production Procedure:

- First of all you collect fully ripened fruit jackfruit, wash it with water and remove the husk
- Then collect the tubers (fleshy part without the seed) and slice them
- Sliced part boil into water for 60 minutes. Then pour into 0.1% KMS (Potassium by sulphate) solution for 15 minutes.
- Then mix of sugar and water should be boiled well and then the syrup mash with fruit until it is completely mixed.
- The mixture then should be diluted and spread on a clean floor or a wide container.

Preservation:

The mixture then should be diluted and spread on a clean floor or a wide container.

3.Jackfruit Pickles:

Ingredients:

Required amount of sliced raw jackfruit, mustard paste, garlic powder, dried pepper, chili powder, turmeric powder, mixed spices, cumin powder half tea spoon.

Production Procedure:

- Heat oil in pan and fry in with mixed spice, dried pepper and crushed garlic.
- Add jackfruit slice and fry well. Add turmeric and chili powder with a little water.
- Put cumin and pickles on low heat for a while.
- You have to shake it from time to time.
- When it comes up on the oil take it down.

Preservation:

Keep in foil paper packet at room temperature (28°c-30°c) and the mouth of the packet should be sealed well so that air cannot come in or out.

Preservation:

- At first you have to cut jackfruit and remove the glue.
- Then peel out the jackfruit and cut into small pieces.
- Then mix salt and turmeric with water in a pan and pour jackfruit pieces in it and pour it for 15 minutes.
- Then dry the water well and should be kept in a zipper bag in air tight condition.

Md. Jahidul Ialam Sajal
former National Director & founder,
IAAS Bangladesh

Scope of an Agriculturist

Both farmers and agriculturists are deeply involved in the success of the agricultural sector in agriculture-dependent Bangladesh. In the context of the country, agriculturists from the government to non-government organizations have been working uninterruptedly in this sector. Just as the agriculturist rejoices at the farmer's smile, he is burdened by the farmer's sorrow. This relationship between farmers and agriculturists is quite cordial. The contribution of the agriculture sector to the country's GDP is 13.6%. This small country of ours is ranked fourth in the world in rice production, third in vegetable production, and seventh in potato production. We are also not behind in fruit production; mango production is seventh in the world and guava is eighth. (Source: Ministry of Agriculture)

I graduated in agriculture. That is why I am writing about agriculture in my writings. Apart from various agricultural universities in the country, agriculture is also instructed in some government and private universities. Since the subject of agriculture is related to technical education, the student can acquire the concept of manual work as well as theoretic. This teaches a student to think about agriculture. There are opportunities for higher education in agriculture in the country. Agricultural graduates have quite good priorities in the Ministry of Science and Technology regarding their higher education research. There are also opportunities for higher education outside the country.

In the context of our country, it is a matter of great honor and pride for an agricultural graduate to join the Civil Service (BCS) under the Bangladesh Public Service Commission (BPSC) as an Agriculture Officer. The agriculturists get the opportunity to work as scientific officer at research and development institutes in the country such as Bangladesh Agricultural Research Institute, Bangladesh Rice Research Institute, Bangladesh Jute Research Institute, Bangladesh Sugarcane Research Institute, Bangladesh Institute of Nuclear Agriculture, Cotton Development Board, Soil Resource Development Institute, Seed Certification Agency, Wheat and Maize Research Institute, etc. There are also opportunities to join various government institutes as teachers. At present, the 41st BCS circular issued by BPSC has given the opportunity for agricultural graduates to apply as Agricultural Extension Officers (183 posts) and Scientific Officers (8 posts). The recruitment circular of the 40th BCS has given the opportunity to apply as Agricultural Extension Officer (134 posts) and Scientific Officer (9 posts). Even if the circular is investigated which was issued by BPSC in the past, it is understood how important the demand of agricultural graduates is in the context of the country!

There are also good opportunities for agricultural graduates in the private sector. Agriculturists can work in BRAC Seed & Agro (under BRAC Enterprise), ACI Agribusiness, British American Tobacco, Supreme Seed Company, National Agricare, Lal Teer, Safara Agro Industries (under Edison Foundation), etc. Besides, there is a great demand for agricultural graduates in pesticide factories, fertilizer factories, and sugar mills.

At present, agriculturists are getting the opportunity to work as agricultural journalists in several private TV channels.
Agricultural graduates easily get job opportunities in institutions like international institutes such as the Food and Agriculture Organization of the United Nations, the International Rice Research Institute (IRRI), the International Maize and Wheat Improvement Center (CIMMYT), the International Water Management Institute (IWMI), the International Center for Agricultural Research in the Dry Areas (ICARDA), etc.

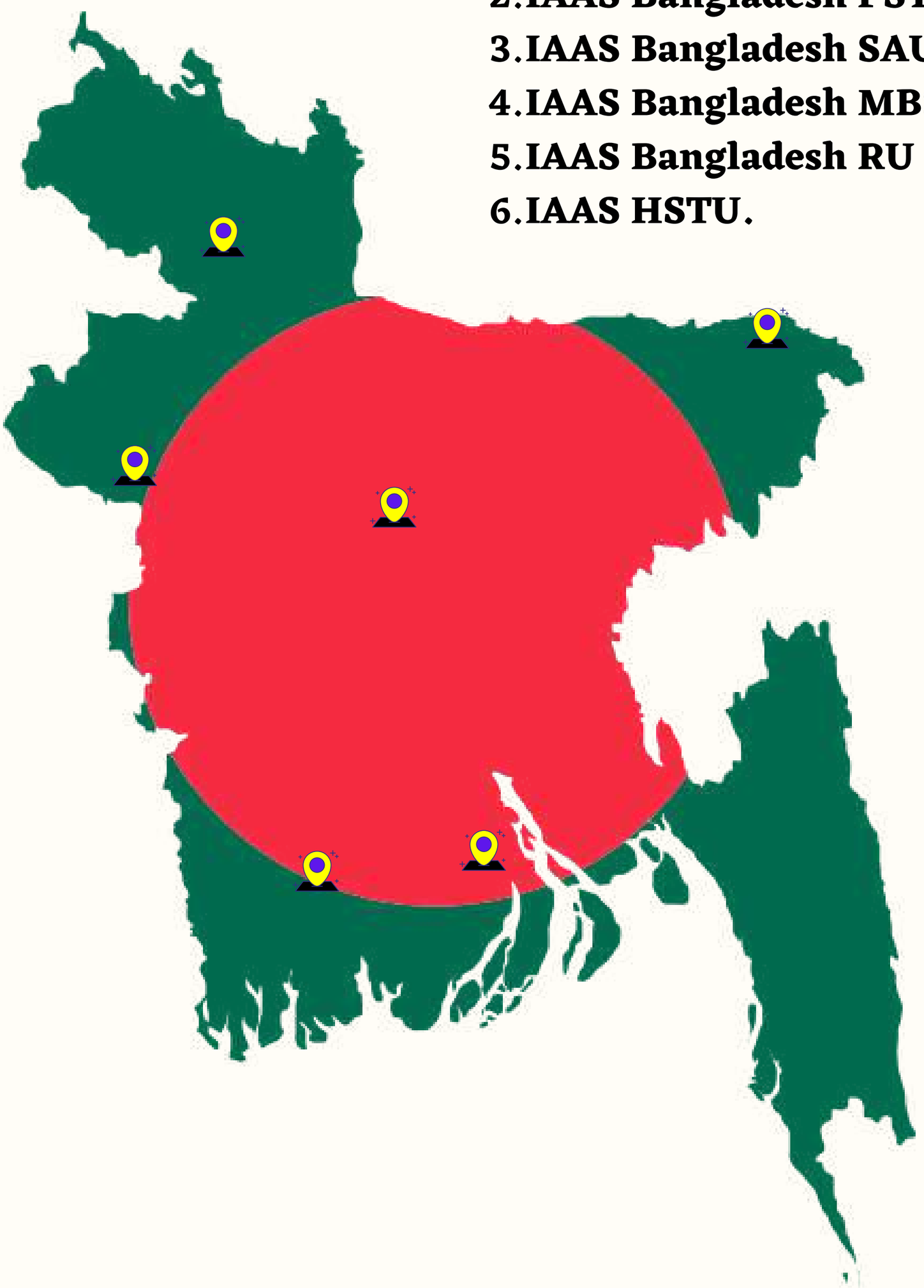
The issue of agriculture is such that if the agriculturists want, they can go for employment and/or then build their own career as a farmer. For this reason, it is a little unique than other sectors. Many agriculturists in the country are now choosing their future as farmers, which is promising for Bangladesh. To take advantage of the time in COVID-19, many students are now planting fruit and vegetable gardens. Leadership, foresight, dedication, learning, and honesty are very important in any organization, whether as an employee or as an entrepreneur.

At present, our country has become self-sufficient in agricultural production. It is important for both farmers and agriculturists to come forward to continue this progress. From research to the development of crop varieties through research, agriculturists have been working tirelessly to reach out to farmers. Therefore, agriculturists have no choice but to achieve prosperity in agriculture in Bangladesh.

Nur E Kutubul Alam
former Vice President of Project Development & Co-founder
IAAS Bangladesh

2 Local Committees

1. KUAAS
2. IAAS Bangladesh PSTU
3. IAAS Bangladesh SAU
4. IAAS Bangladesh MBSTU
5. IAAS Bangladesh RU
6. IAAS HSTU.



KUAAS

Khulna University Organization Fair

Khulna University organized and Organization fair in there campus. It was held from 25 February to 27 February. All the organization of Khulna University participated in that fair. As an organization of Khulna University KUAAS also participated in that fair. There KUAAS show their work and past programs. All the teacher came to this fair was pleased in KUAAS's program. National Director of IAAS Bangladesh, Md. Tangimul Islam and former National Director of IAAS Bangladesh Md. Jahidul Islam also visited KUAAS's stall. Beside KUAAS also collect their member in that program. As a result now KUAAS is a family of more than 150 members.

Facebook Live with Former ND

KUAAS organized a Facebook live session with former National Director of IAAS Bangladesh, Md. Jahidul Islam Sajal on "Vegetable production in home ground". This program was held in KUAAS facebook page. Md. Tanjimul Islam, National Director of IAAS Bangladesh was the host of this program. Different process of vegetable production was discussed in this program. Beside the guest suggest us how we can grow vegetable in our home and be productive. At the end of the session he answered some question asked by out participants.

Idea Sharing Contest

KUAAS launched an online idea sharing contest on "Food Preservation Process During Pandemic. At present we all are passing a disaster time. Covid-19 pandemic has ceased our life all over the world. However, it is a matter of joy that enough food production is reported by the ministry of food. But, a huge amount of raw food is being exposed at risk of rotten. As food transportation is almost suspended. So following this problem we organized this program.

Program was started in 10th june and last date of idea submission was 25th June. We got a huge amount of response in this program. Among all the participants, top 5 participants got certificate and participants, who got the top position in this competition will got the chance to be in facebook live with us.

KUAAS ADDA

On July 5, KUAAS organized an online KUAAS Adda. All the general members and executives are present there. It was held in google meet app. This program was held to get interaction with the general member. Different work, program and future plan were discussed in that program.

Different work, program and future plan were discussed in that program. Beside there was a brief description of KUAAS's future competition and program. In the end there was a public speaking season where all the members share their

- GMO-Genetically Modified Organism
- About Sundarban
- Modernization of Agriculture
- Environment Preservation
- Waste Management
- Role of Fisheries on Bangladeshi Economy

Facebook live session on "Understanding IELTS"

KUAAS was organised on facebook live session on "Understanding IELTS". We have Md. Shozibul Islam (British CELTA certified IELTS trainer & CEO and Founder of Lexicon) as our guest speaker. He discussed all about IELTS how should we study, how should we take preparation and all other topics. He also give us direction and tips to do well in IELTS. He also thanked KUAAS to organize this program.

Declaration of New Executives

KUAAS recently declares new executive committee. The executives are declared in a zoom meeting where all the members are present. Former president of KUAAS and national Director of IAAS Bangladesh Md. Tangimul Islam declared the new executives. VP of Exchange Coordinator and former VP of Project Development also present in that program.

New executive Board contains 11 members. The list of the executives are given bellow-

1. S.M. Kamran Ashraf, President
2. Saleha Khatun Ripta, Vice-President
3. Md. Asaduzzaman Nur, General Secretary
4. Sabrin Nahar Mithila, Secretary of Treasure
5. Md. Aminul Khan, Secretary of IT
6. K.M. Salim Andalib, Secretary of Project Development
7. Md. Habibur Rahman Tasin, Secretary of Project Development
8. Avijit Paul, Secretary of Communication
9. Md. Sakil Hasan, Secretary of Communication
10. Mudabbir Hossain Akil, Secretary of Office Management
11. Jannatul Mursaleen Oyshy, Executive Member.

IAAS BANGLADESH PSTU

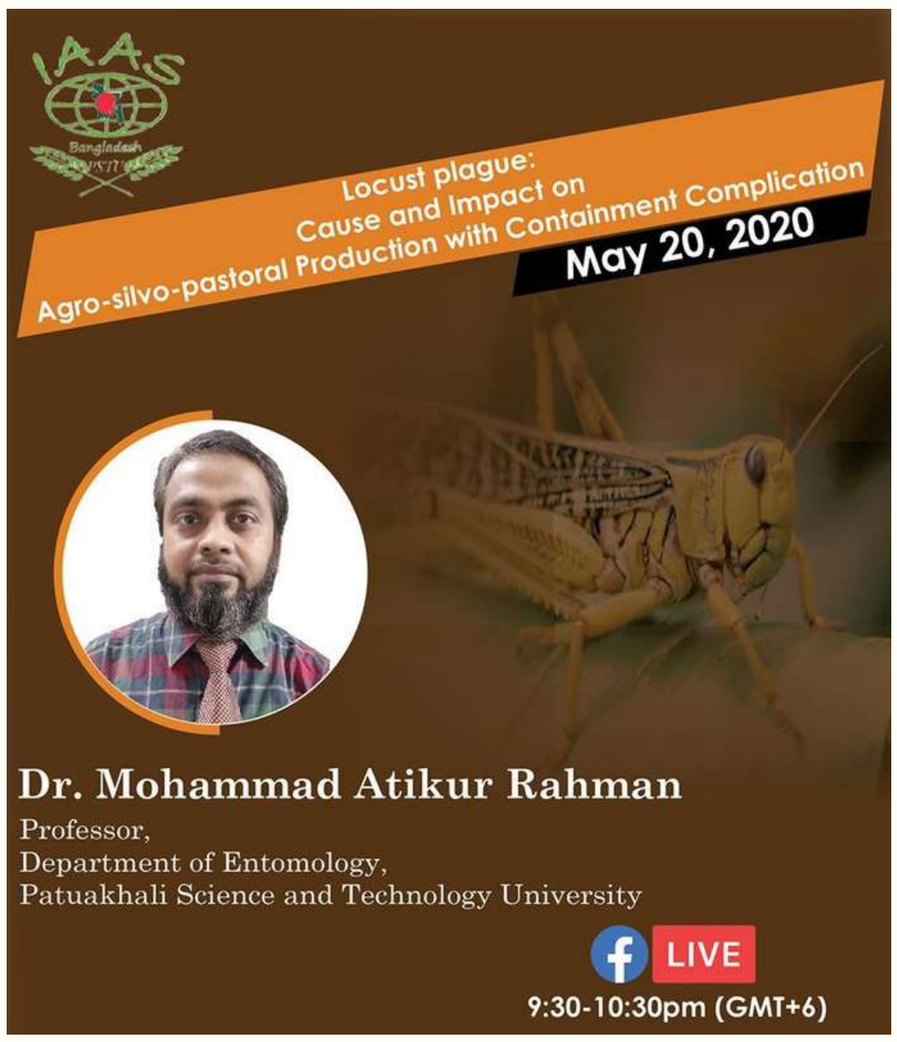
PSTU to Abroad

For better study opportunity and research facilities students dream to study in a reputed Universities of the world. To give a boost to their dream different prestigious scholarship holder of PSTU shared their experiences and process to get scholarship and funds from studying abroad. Our 5 mentors run the session and 250 participants had been the beneficiaries of the program.

Agricultural Diplomatic Symposium

To introduce the students of Agriculture and related sciences with the UN General Assembly, IAAS Bangladesh organized for the first time in Bangladesh Agriculture Diplomatic Symposium. 40 students representing different country participated as a shadow Ambassador of the country and tried to find out the solution of a global problem" Reviewing the ethical issues and development policies for GMOs".

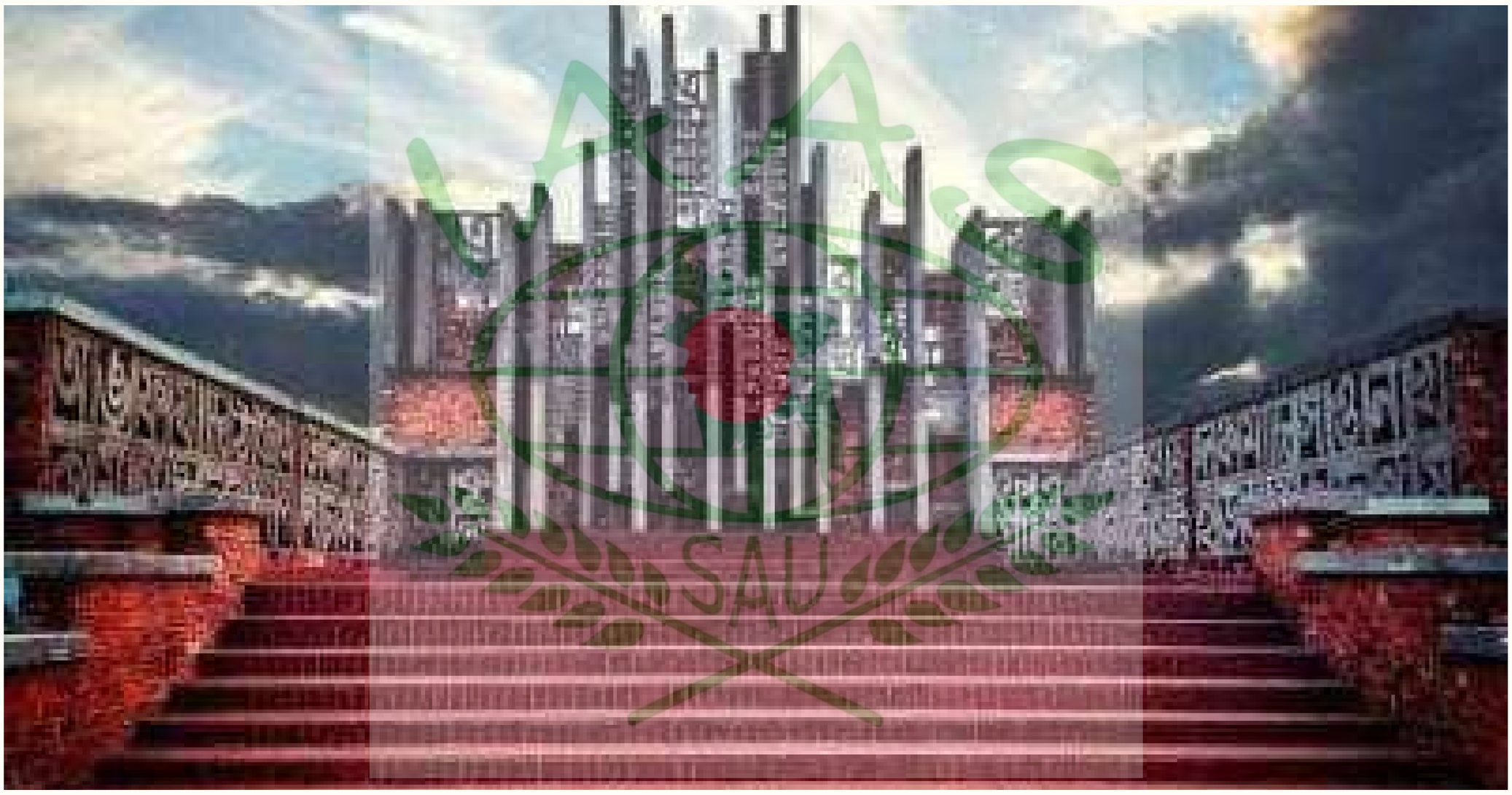
Entrepreneur Talk



Locust Plague

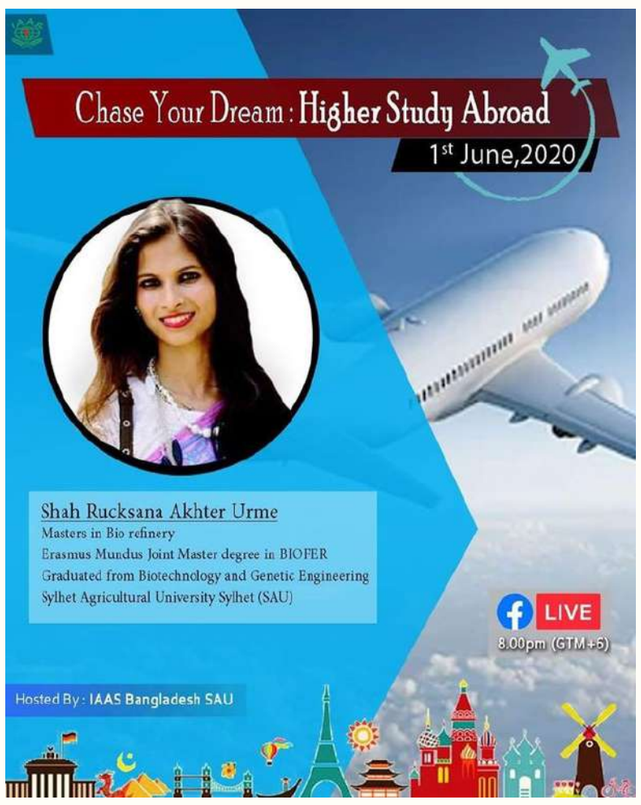
COVID-19 & Nutrition Alarm

IAAS BANGLADESH SAU



Activities of IAAS Bangladesh SAU

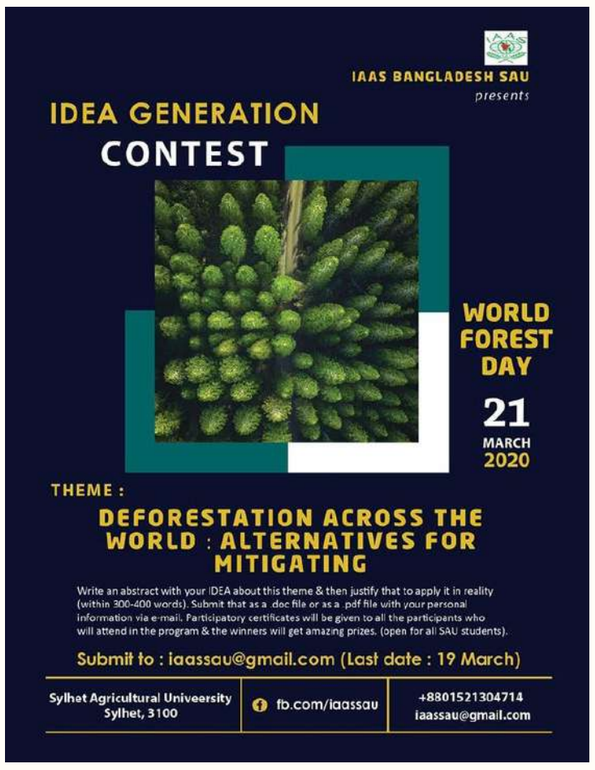
IAAS Bangladesh SAU local committee was formed on 2nd March, 2020. An executive meeting was held on 7th March at University premises. An idea generation contest was announced for International day of Forest with the theme of "Deforestation Across the world : Alternatives for mitigating".



An executive meeting was held via zoom on 17th may. on 1st June,A career guideline live session with the theme "Chase your dream : Higher Study Abroad " was arranged with Shah Rucksana Akter Urme who recently got prestigious Erasmus Mundus scholarship.Asibul Hasan Shakil,Office secretary of IAAS Bangladesh SAU hosted this show. On 4th June, a general meeting was held via zoom with all the committee members. On 5th June,World Environment Day, a live session entitled with "Celebrate Biodiversity" was arranged where Md. Samiul Ahsan Talucder Sir (Advisor, IAAS BD SAU) and Dr. Md. Omar Sharif sir shared their important thoughts about biodiversity while Tasfia Tahzin (president, IAAS Bangladesh SAU) acted as host.

On 13th July, a live session was arranged with Dr. Mehedi Hasan Khan sir (Advisor,IAAS Bangladesh SAU). Communication manager Tanjila Fareha Rafa hosted the programme. IAAS Bangladesh SAU is looking forward to organise more programmes which will be important yet interesting for everyone from agriculture and related Sciences.

Bangladesh	Our Nature, Our Promise
Bangladesh	World Environment Day -2020
Bangladesh	Virtual Speech on World Environment Day
Bangladesh	We Care Nature: Keep Biodiversity
Bangladesh	World environment day : Celebrate Biodiversity
Bangladesh	Green Environment Movement
Belarus	Экологическая акция «Посади цветок у дома»
Benin	World Environment Day: Natural solution for the Climate crisis and for the healthy world in COVID-19 period
Benin	Wear a mask, plant a tree
Benin	Arbres-vie
Bolivia (Plurinational State of)	Día de la biodiversidad: Bolivia
Bosnia and Herzegovina	Book Speller of HEALTH with items about Biodiversity
Brazil	Política Ambiental Brasileira: Aspectos legais e técnicos das normas Mata Atlântica x Código Florestal.



IAAS BANGLADESH MBSTU

National Idea Generation Contest

In the honor of World Water Day, 22 March, 2020, IAAS Bangladesh MBSTU wanted to celebrate this day with grand exposure aiming at enriching the knowledge and understanding of young people about the water pollution and its contemporary issues over the world.1st Round of this program is already happened. Unfortunately, final round is postponed due to COVID-19. But it will be held obviously after the ending of pandemic.

Idea Generation Contest is an Oral Presentation Competition (PowerPoint) based on the theme "Water and Climate Change". This is also the theme of World Water Day, 2020. This competition is only for University students. Students who are currently studying in any University within the country can participate in this competition.

Presentation Sub Theme:

1. Water Pollution
2. Water Treatment
3. Water and Environment
4. Waste Water Recycling
5. Water Purification
6. Water and Agriculture
7. Sustainable management of freshwater resource.

This contest has 2 Phases. Phase 1 is abstract submission round. The Jury board conducted a primary selection and top 10 team was selected for final Round. Selected participants have to pitch their idea on Final round. Each team can include 1/2/3/4 members. There were no registration fees. Pitching Time of final round is 6 Minutes.

Prize:

a. Three top scorers (Champion, 1st Runner-up, and 2nd Runner-up) will be awarded in the closing ceremony.

b. All participants will receive certificate of participation.

Our Media Partners are Ekushey TV, Doinik Odhikar, Bangla Tribune, Agriview 24.com.

We get enormous response for idea generation contest. Total 21 abstracts are submitted. Maximum team contain 3/4 members. So, we get more than 70 participants from 21 teams.Team from MBSTU, Dhaka University, CUET, PSTU, Dhaka Independent University, Rajshahi University, SUST, Khulna University, Chittagong University and others submitted their abstract. The Idea Generation Contest is a platform for budding entrepreneurs to showcase their creativity and innovation. It's a channel to promote creativity and entrepreneurial skills by recognizing innovative ideas for new products, services, and technology.

Awareness Campaign on Nature Conservation

With the emergence of the Novel Coronavirus, the world is going through a tough time creating new challenges for all. The COVID-19 pandemic has shown us that if we want our ecosystems to take care of us, we need to take care of them." In this perspective, World Environment Day (5th June, 2020) is celebrated. The theme of the Day was 'Time for Nature'. In honor of Environment Day, IAAS Bangladesh MBSTU launched 'Awareness Campaign on Nature Conservation'. It was a registered program of UNEP (United Nation Environment Program).

We got good response within short time. Students from three different University such as Mawlana Bhashani Science and Technology University, Pautukhali science and Technology University, Bangabondhu Sheikh Mujibur Rahman Science and Technology University are participated.

Event two child of class 3 and 4 are also participated and share their idea to conserve nature. We got total 13 videos created by enthusiastic people within 5 days.

We created awareness among people for conserving the nature through sustainable use of the resources or what to do or not to do for the betterment of the environment. Many issues were come like saving the electricity, gas etc. as well as how to recharge ground water, how to conserve the biodiversity of special area, how we conserve the tree etc. We also get some creative ideas like production of paper from poop! Obvious these ideas can help to conserve nature.

Facebook Live Session on 'Road to Commonwealth Scholarship'

Commonwealth scholarship is one of the most renowned scholarship in the world. 53 Countries are the member of Commonwealth. The applicants from these countries are eligible to apply for Commonwealth scholarship. IAAS Bangladesh MBSTU arranged a Facebook live program on "Road to Commonwealth Scholarship" on 22 June, 2020

Facebook Live Session on Road to 'Japan for Higher Study'

Many students prefer going to Japan, for it has the top-notch quality of education topped with rich cultural heritage. Japanese universities perform well in global rankings, with several institutions featuring in the top 300 of the main league tables. IAAS Bangladesh MBSTU arranged a Facebook live session for those who need to know about this Japanese study abroad opportunity, how to prepare and how to apply.

Come to help the flood Affected People

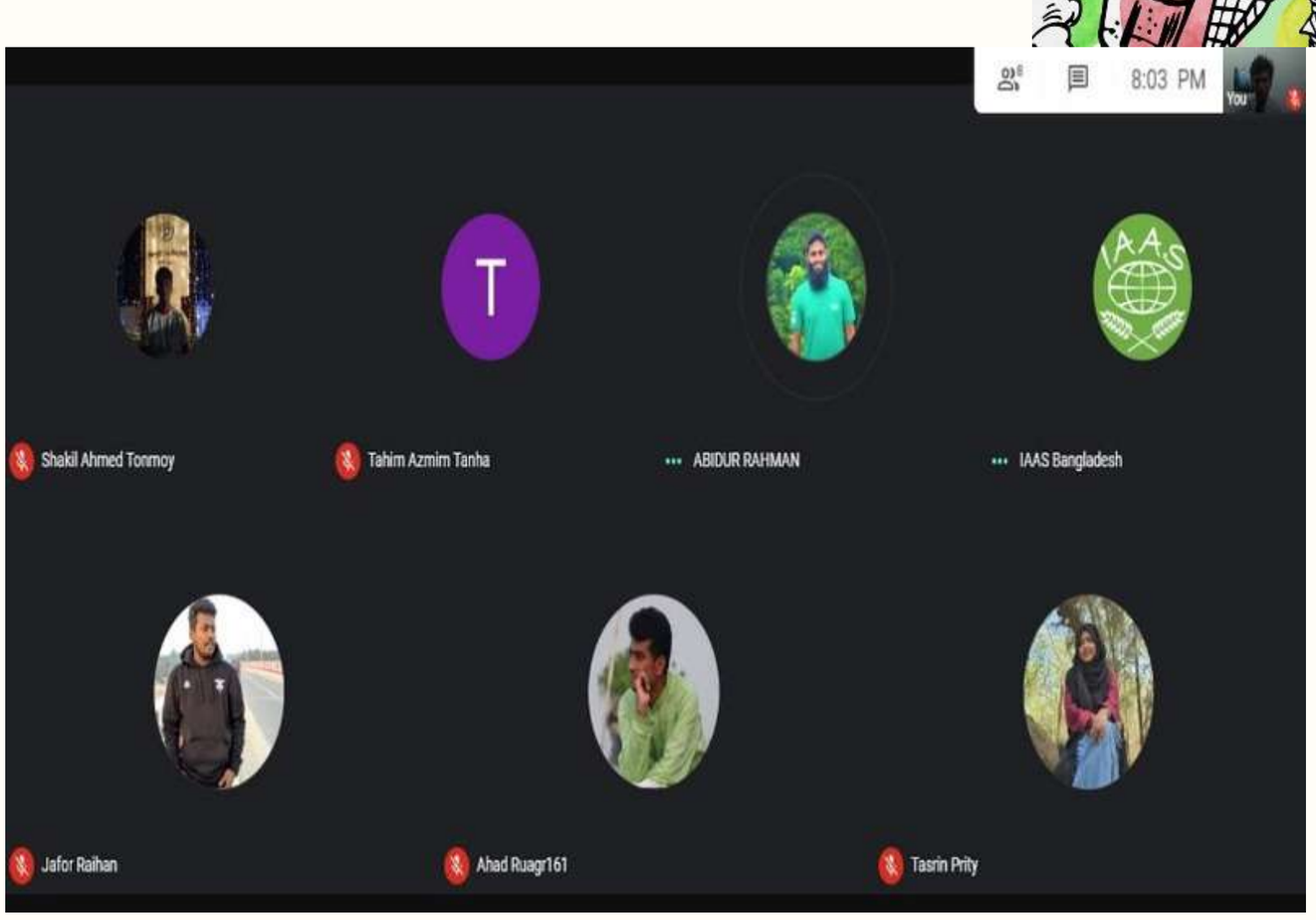
About 26 districts have been flooded so far this year. The flood situation in 11 districts is still worst. Although flood waters have started receding in some districts, there is now an acute shortage of food and clean drinking water. Unable to earn an income, the victims are spending inhuman days with their families. Relief efforts are also being hampered by the Koviv-19 epidemic. The situation of flood victims is becoming more miserable.

In such a situation, "IAAS Bangladesh MBSTU" has decided to extend a helping hand to the helpless people. Initially, we will conduct relief activities among the flood victims in Naogaon district. More than half a million people have fallen, hundreds of mud houses have collapsed in the floodwaters, 3,000 hectares of cropland have been inundated and fish farmers have been severely damaged.

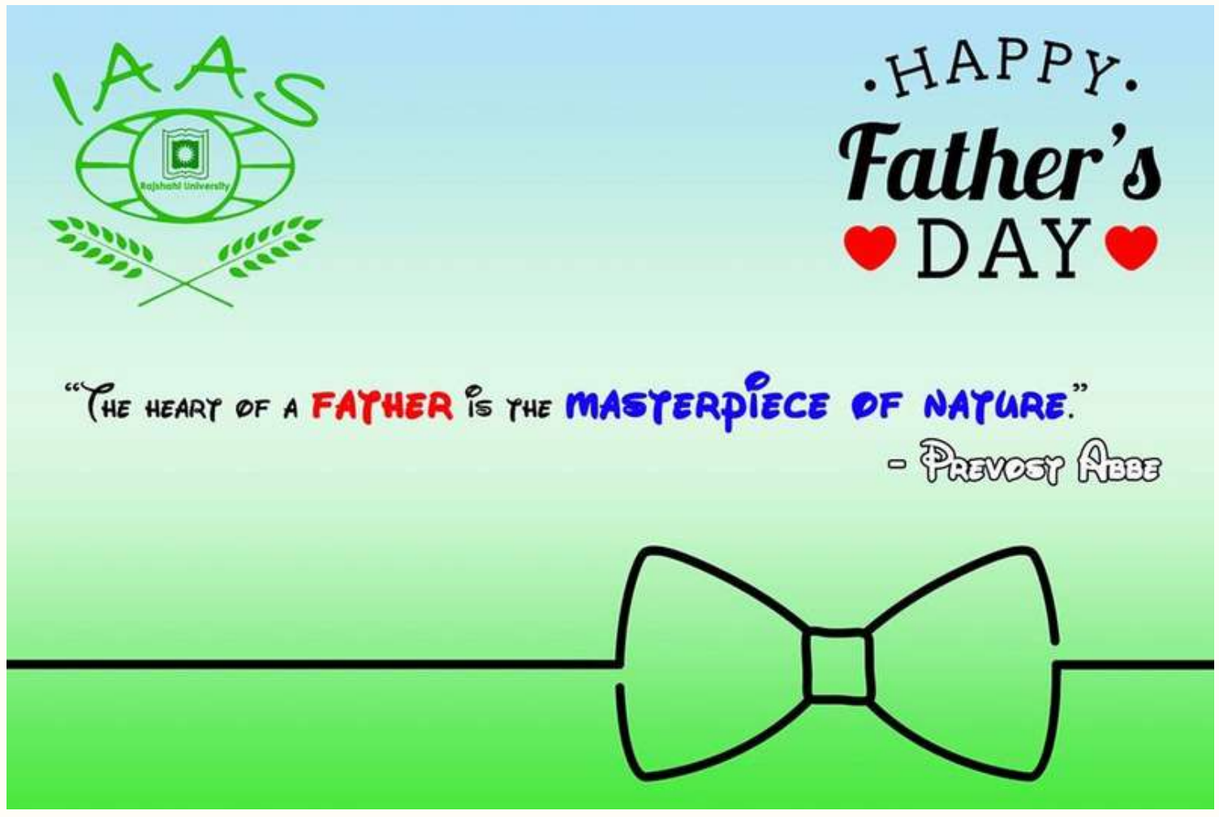
IAAS BANGLADESH RU

World Environment Day Celebration

World Food Safety Day Celebration



International Meeting



Father's Day Celebration

IAAS BANGLADESH HSTU

Facebook Live Session on 'ASB Plants and Crop Solution'

Hello everyone, we are very glad to inform you about our first online event from IAAS Bangladesh HSTU with the collaboration of Agricultural Students of Bangladesh (Online group). It was happened in 21.05.2020 at 9.45 PM. Our guest teacher was from Sher-E-Bangla Agricultural University, Dhaka.

Here is our teachers details :

Prof. Dr. A F M Jamal Uddin

B.Sc. in Agriculture(BAU), M.S. in Horticulture(BAU) and PhD (Kagoshima University , Japan), Post Doc (Gifu University . Japan),

Professor, Dept. of Horticulture, SAU

Have more than 300 publications, released 7 varieties, Introduce Nondini flower, 90 minutes Schooling, Green Bangladesh

Basically the purpose of this online event was:

- To know about Plant and Crops disease solution.
- To inspire the Agriculture students in field sectors.
- To inspire the agricultural students in Roof Garden.
- To inspire the agricultural students in various agricultural working sectors.

Here about 4000 thousands students were in this live session. Our guest teacher answered the most of the comments of the students.
Live session duration was near about 1.5 hour. In the end the live session was so taught able and learned able.

3 National Advisory Board

National Advisory Board

Dr. Matiul Islam
Professor, Agrotechnoly Discipline,
Khulna University

Dr. Muhammad Maniruzzaman
Professor, Agricultural Chemistry,
Patuakhali Science and Technology University

Dr. Mohammad Mehedi Hasan Khan
Professor, Biochemistry and Chemistry,
Sylhet Agricultural University

Dr. Mohammad Atikur Rahman
Professor, Entomology,
Patuakhali Science and Technology University

Dr. A.S.M. Saifullah
Professor,
Environmental Science and Resource Management,
Mawlana Bhashani Science and Technology University

Dr. Yamin Kabir
Professor, Agrotechnoly Discipline,
Khulna University

Dr. Mir Md. Mozammal Hoque
Associate Professor,
Environmental Science and Resource Management,
Mawlana Bhashani Science and Technology University

Mir. Mohammad Samiul Ahsan Talucder
Associate Professor, Environmental Science,
Sylhet Agricultural University

Floating bed fodder cultivation in submerged and flooded areas

Introduction

Sylhet Division is consists of some hilly areas and hundreds of haors and beels varying in size from a few hectares to several thousand hectares. In monsoon these haor basins remain full of flood water but in winter remain dry and barren. As a result, especially during rainy and winter seasons, ruminants in those areas cannot get quality forage with the consequence of poor health and production. Floating bed agriculture is an age old practice of the farmers from Southern Bangladesh that evolved over the last 20 years. Use of such cultivation practice allows the farmers to cultivate crops against the obstacle of a disaster like a flood; also it is cheap, easy and widely accepted by the local farmers and nowadays practiced in many parts of Bangladesh. Introduction of low cost floating bed fodder production and silage production technology may be an alternative to minimize the problems of fodder crisis in the haor areas and other flood prone areas.

Description of the Technology

- Floating bed fodder production may be recommended for submerged and flooded areas as an alternative source of fodder materials to feed animals during lean period for increasing feed security for livestock in the haor areas.
- Bamboo frame of the size of 30-60ft x 5ft need to be made and covered the frame with plastic net.
- Four pieces of mature banana plants beneath the bamboo frame should be fixed for floating management; empty bottles may be used instead of banana plants.
- For making the first layer of the floating bed, the floating bamboo frame need to be stacked with sufficient amount of dried water hyacinth to make at least one foot height. The top layer of floating bed should be prepared by adding dried cow dung mixed soil to the height of 3 inches.
- After selecting a good location, the platforms should be fixed with bamboo poles keeping a suitable distance from the bank.
- German grass (*Echinochloa polystachya*) would be suitable for floating bed fodder cultivation. Cuttings of German grass containing three complete internodes with four nodes should be planted in rows keeping row to row distance of about 0.25m with a plant to plant distance of 6 inches.
- The grass could be harvested at 60 to 65 days for 1st cutting followed by 40 to 45 days for the subsequent cuttings.
- To ensure year round availability of fodder, silage may be prepared using the floating bed grasses.
- Submerged and flooded would be suitable for this technology.

Source: The New Humanitarian

Benefit of the Technology

- Higher production of German grass could be obtained from floating bed (about 160 ton/ha) compared to floating bed Dal grasses (80 ton/ha) and naturally growing local grasses (18 ton/ha) and German grasses growing on land (85 ton/ha).
- Higher nutritional value of the silage of German grass would be obtained (Ash 4.88%, EE 3.93%, DM 30.5% and CP 12.37%) compared to the green German grass (Ash 3.5%, EE 3.49%, DM 16.7% and CP 10.15%).
- Silage also makes the fodder more digestible (IVD 45.66%) than the green grasses (IVD 36.56%).
- Floating bed fodder cultivation would not have any adverse effect on fish production.
- Milk production of the cows fed with floating bed German grass would be increased by 0.2L/cow/day or 50L/cow/lactation along with the increase in fat composition (4.42%) which normally is 2.69%.
- Higher BCR (5.6) could be obtained for the cows fed with floating bed fodder compa redto the cows fed with local grass (0.96).

Way Forward

The technology can be disseminated to the farmers through

i. Multi-location piloting and training of the extension personnel and farmers from haor areas, coastal zone and other flood prone areas.
ii. Distribution of leaflet and folder to the farmers and
iii. Publicity through mass media.

Acknowledgement: PIU-BARC, NATP-2 for funding the research project.

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Sylhet Agricultural University
Email: khanmmh.biochem@sau.ac.bd **Mobile:** 01680592166

Be Aware, but Don’t Panic: Coconut Case Caterpillar in Bangladesh Perspective

Background

Nowadays, Coconut Case Caterpillar is inciting panic for a number of reasons in Bangladesh to the coconut or betel nut growers. It is newly invaded or quarantine pest in Bangladesh (Rahman et al. 2019), very destructive, polyphagous and very difficult to control owing to its hard outer case. On May 31, 2020, this caterpillar was mistakenly treated as locust by the coconut growers due to its voracious leaf feeding nature in coconut garden at Tangail (Bhuiyapur) in Bangladesh which was published in different daily news and telecasted in different TV channels. Actually this caterpillar was coconut case caterpillar, Mahasena corbetti Tams under the order Lepidoptera an family Psychidae that was firstly recorded in Bangladesh by Rahman et al. in 2019.

On 12 May 2018, caterpillars of bagworm moth, M. corbetti were firstly observed to be feeding voraciously on the leaves of areca nut (Areca catechu L.) plant in PSTU Farm, and then it was reared in the Entomology Lab, Patuakhali Science and Technology University (PSTU), Patuakhali, Bangladesh to study its biology intensively. The incidence of this pest was also observed in Hena, Lawsonia inermis (Myrtales: Lythraceae); Coconut, Cocos nucifera (Arecales: Arecaceae); and Dracaena plant, Dracaena fragrans (Asparagales: Asparagaceae) for the first time in Bangladesh. Maximum abundance was observed from June to October. Larvae construct cases made of silk and the materials from the habitat ie. large pieces of leaflet that give them their characteristics ‘shaggy appearance’. Serious attack can kill the tree because of severe defoliation. Bagworm, M. corbetti is considered as a pest of quarantine importance in several countries (Firake et al., 2018).

Among 241genera of bagworm moth and approximately 1350 species under family Psychidae, the genus Mahasena Moore was represented by 12 species within the Oriental region, with two occurring in Southeast Asia, namely, Mahasena corbetti Tams and Mahasena andamana Moore (Sobczyk, 2011; Robinson et al., 1994). The species Mahasena corbettiis one of the serious polyphagous pests of many plants in Southeast Asia and some islands of the Pacific, which complete larval development within a self-enclosing bag in which females are apterous. It was regarded as destructive agricultural pest, as their larvae voraciously feed on the leaves of many economically important plants. About 37 genera in 21 families of plants were known to attack by the larvae of M. corbetti and their most preferred families were ‘Fabaceae’ and ‘Arecaceae’ (Leong and Lim 2012).

In Malaysia and Indonesia, Bagworm, M. corbetti was reported as leaf-eating pest of oil palm that resulted in crop losses more that 40%-50% in two subsequent years (Liau, 1987). The very recently Firake et al. (2018) reported from India that the larvae of bagworm, M. Corbetti were found feeding on few arecanut plants and subsequently 1/3rd leaves of those plants were found to be defoliated within next 2–3 months. The affected plants had very few number and poor quality fruits compared to unaffected plants. Besides severe defoliation, necrotic patches were also formed on infested leaves which gave them ‘burnt appearance’ to the plants. Thus, it is essential

to prevent the bagworm infestation reaching a moderate level as it can result in serious economic losses (Darus and Wahid 2000).

Coconut Case Caterpillar, M. corbetti was more widely distributed and had been recorded from Bangladesh, India, Thailand, Malaysia, Singapore, Sumatra, Java, Brunei, Solomon Islands, and Samoa (Firake et al., 2018; Rahman et al., 2019). In 2015–2016, severe incidence of M. corbetti was observed on arecanut (Areca catechu L.) plants in Sohbar and adjoining villages of East Khasi Hills district of Meghalaya State (India) that is bordering India and Bangladesh (Firake et al., 2018).

The aim of this report is to create the awareness among the areca nut and coconut growers in Bangladesh so that they can identify this invaded caterpillar easily and manage them properly without being terrified.

Identification

Newly hatched caterpillars are barely visible to the eye but easily visible when caterpillars are concealed themselves within larval case that consisted of overlapping thin strips of leaves excised from their host plant. They feed the leaves during day and night time but preferred to feed at night instead.

Fig.1. Different stages of coconut case caterpillar, *M. corbetti*

In severe infestation, almost whole plant became defoliated and ultimately the plant died. Usually the caterpillar passed almost three month (90±5D) with feeding then they stopped feeding and sealed the entrances to their larval cases. Full grown larva (without case) of *M. corbetti* was about 15–20 mm long, head and thorax were brown in colour, while the abdomen was light yellowish brown in colour. Apical margin of prothorax creamy white; a white lining runs through dorsally on pro and mesothorax; a dorsal dark strip observed on the abdomen. In early stage, head and thorax of the larva brown but abdomen cream colour. Three pairs of true legs present on thoracic region, and five pairs of abdominal prolegs present on 3rd, 4th ,5th ,6th and 10th abdominal segments.

The male pupae of M. corbetti were 13–15 mm length, and usually found attached to the bottom of the case. The female pupae were arger than male in size (20–23 mm length) and dark brown in colour and found inside the cases. The adult female remains inside the pupa throughout the life. Adult females were wingless, cylindrical and creamy-white in colour. All the body appendages were highly reduced.

The adult male moth survived 1-3 days (2±1). It was dark brown moth at a glance, body length with wing 12-13 mm; length of forewing 9-11 mm; hind wing 5-6.5 mm. Head with distinctly bipectinate antenna having 21 ciliated pectin. Their wings were a dark chocolate brown, costal margin almost straight, apex roundish, densely covered with medium broad scales; hind wing smaller than forewing (1:2); while the thorax was a lighter chestnut brown. Along the posterior segments of its abdomen, the flanks were adorned with prominent and symmetrical tufts of hair pointing outwards and backwards.

Fig.2. Damage of Bagworm, M. corbetti to Areca nut plant (1); Infested leaves of areca nut caused by caterpillar (2); Infested areca nut fruit caused by bagworm (3); Defoliated leaves by a number of bagworm caterpillars (4).

The adult male climbed onto the female's bag, hung upside down, and extended and inserted its abdomen into the bag, and then mated with the female. After oviposition, the female might die
inside the bag or mummified.
Male genitalia
Male genitalia were long. A hemispherical tegumen carried out a pair of clasper that was sclerotized with 2-3 hook shaped extension; valvae long, extending the distal end of tegumen; vinculum trapezoidal and saccus very long in shape. The aedeagus (phallus) very long, longer than entire genitalia, curved, distinctly thinner towards distal end, dark brown in colour.

Management

Plant damage comes from caterpillars. Bagworms often go unnoticed until it's too late. Timely proactive treatment is essential to save plants from this notorious pest. The following recommended control measures should be followed intelligently-

- Removing bagworm cases from trees and shrubs during winter or early spring, before caterpillars hatch from eggs inside because each bag can contain hundreds of eggs.
- If the caterpillar are no longer visible and feeding, bags are no longer moving, then its too late to treat. Tree should be protected from bagworm defoliation by spraying in late May or early June.
- Collecting and destroying the immature stages of moth where possible: spray the tree with Sevin/Carbaryl/Cypermethrin/Deltamethrin/Dichlorvas as per recommendation.
- Spraying with Spinosad 45 SC @ 3.2 ml/ 10L of water.
- Spraying with Dipel (Bt.) 1.1Kg/ha Setting up light or pheromone trap, adult male moth can be trapped.
- Using sticky bait with female, adult male can be trapped.
- Picking up the caterpillar case by hand and kill these into kerosene water.

Conclusion

It is essential to manage the pest population to below economic threshold level to reduce the losses. For this purpose, more integrated management practices need to be developed by using the latest low cost technologies which will give sustainability to the coconut / areca nut production or industry as a whole in Bangladesh. Last but not least, farmers should be trained up about the pest identification and management so that they will not be panic to face any new pest problems in crops.

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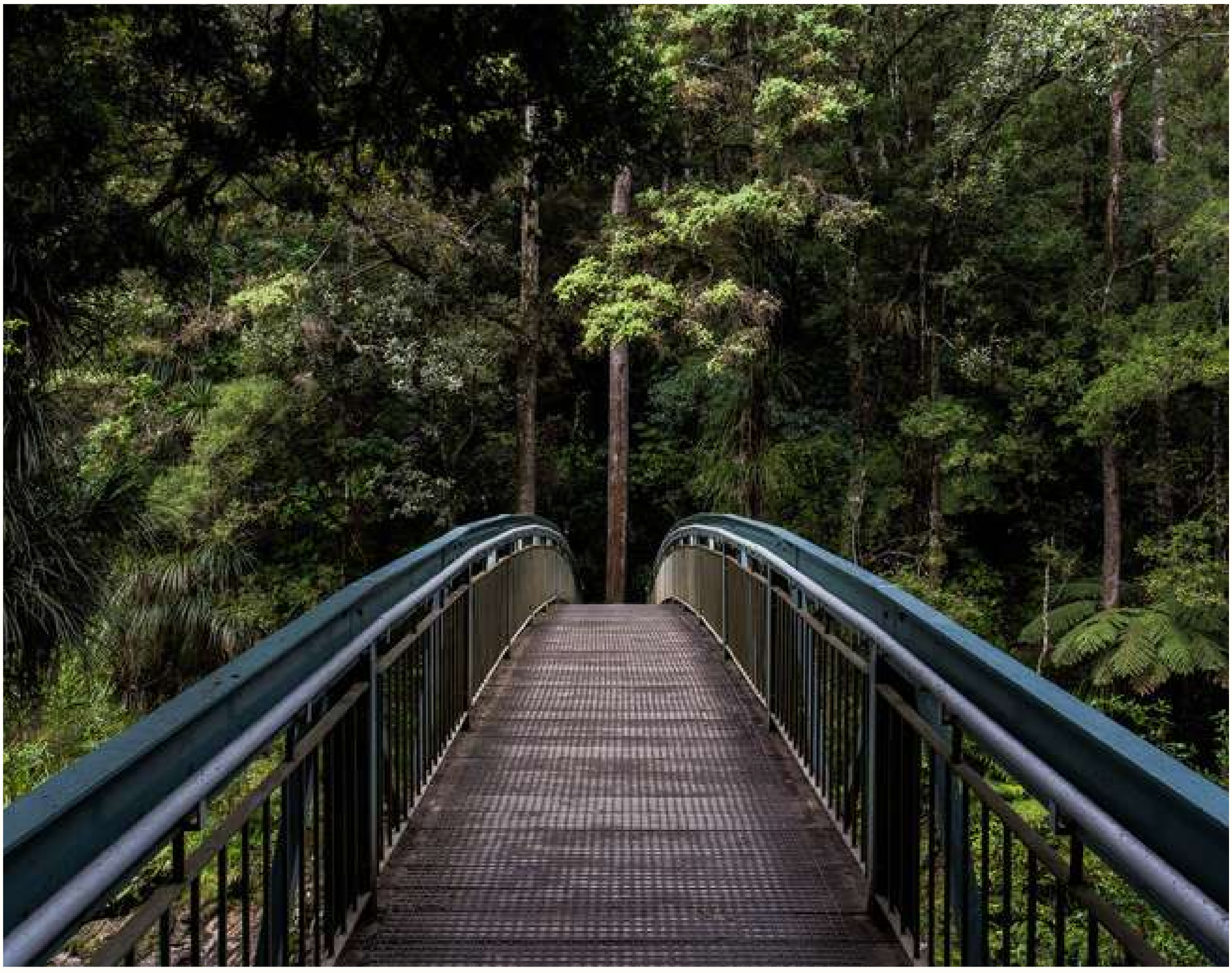
4 Vision of IAAS Bangladesh



Agriculture is a major concern of Bangladesh as it is closely related to the daily life of everyone and has a long history of practice in the world. The basic needs of the growing population of Bangladesh are met through agriculture. Although the discovery of gold or oil mines was once considered invaluable, this concept changed completely in the twenty-first century. Now the discovery of natural resources is considered invaluable. We want to expand science based agriculture for the development of agriculture in Bangladesh.

IAAS World is the largest organization of students studying agriculture. The organization started its journey in 1957 in Belgium, Europe. This voluntary organization is currently working with more than 10,000 students from more than 55 countries around the world. The principal aim of IAAS is to promote the exchange of knowledge, information and ideas among students, and to improve the mutual understanding between countries and cultures. To do this, it organizes activities like seminars, working camps, international meetings, exchange weeks, an international exchange program, small-scale development projects.

IAAS started its journey in Bangladesh at the end of 2017. In just 3 years, the organization has reached out to more than 10 university students studying agriculture and agronomy. The vision of IAAS Bangladesh is to promote the exchange of experience, knowledge and ideas, and to improve the mutual understanding between students in the field of agriculture and related sciences all around the countries. IAAS Bangladesh has been created to increase the interaction among the students studying agriculture or related subjects in different institutions of Bangladesh. The platform desires to make concerted approach for all our youth generation for the betterment of our country with the help of Agricultural and related sciences.

IAAS Bangladesh Vision aims to bridge three main divides:

- Agricultural Innovation and Startup
- Collaboration between youth generation, Academician and Entrepreneurs
- Farmers with modern technologies

A world where sustainable agriculture is the basis of rich and resilient rural landscapes and livelihoods. Agriculture is also an industry that has a profound impact on the local economy and human health. To make this happen, we will work directly with farmers, agencies, donors and other agencies to accelerate and deepen the positive impact we can have as partners in the journey of something new.

We believe that a student can change society through his ideas and plans. Sustainable agricultural development and expansion, environmental conservation and biodiversity conservation, safe food production and nutritional needs have been linked to our daily lives. How can the world feed almost 10 billion people by 2050 through sustainable practices? Growing global concerns centered on food security and environmental degradation have shed light on agriculture. The current Food systems do not provide nutritious food to the world's population in an environmentally sustainable way. About .8 billion people are malnourished, although 200 million are deficient in micronutrients and 2 billion more are overweight or obese. At the same time, food production, transportation, processing and waste are putting unstable pressure on environmental resources.

Finally, for more than 50 years, the IAAS Exchange Program has been providing the most practical internships at the international level to more than 20,000 students on farms, research institutes and volunteer projects. While expanding their own perspective with their offers, they have all the unique opportunities to gain experience and learn about (related) topics related to agriculture. In doing this internship, students have the opportunity to experience how agricultural institutes work in other countries and to exchange ideas, experiences and information. Organizing this exchange is one of the ways we try to achieve our vision.

The alternation of agriculture in the future needs to be shaped by new policies and methods that consider important issues such as farmer and job opportunity creation, which add value through decentralized processing and are based on better alternative technological models to address environmental and quality issues. This will require significant investments at the firm level as well as infrastructure and related businesses. In the coming days, IAAS Bangladesh will provide information on new agricultural technologies to more than 15,000 farmers, including sustainable agricultural development, safe food production, environment and climate protection, and Agri-entrepreneurs. In conclusion

"Our aim for every life in all its Agricultural
Our Vision for every minds, the will to make it so Golden Bangladesh"

Md.Tangimul Islam,
National Director, IAAS bangladesh

5 Exchange Programs

WHAT IS EXCHANGE PROGRAM?

The Exchange Program, also known as 'ExPro', gives students the opportunity to do an internship in a country with an active IAAS chapter. The aims of ExPro is to provide the student with new skills and know ledge, along with exchanging ideas and being aw are of different social and cultural environments.

The IAAS exchange program ' Expro' - exists over 45 years and in this time, more than 20.000 students have been exchanged with IAAS. The IAAS exchange program gives opportunities to all students in C countries, where a recognized local committee of IAAS is active, to do a traineeship (internship) in another country. With 'Expro', you can learn and experience things that cannot be learned out of course books.

The aim of IAAS exchange program

IAAS expro is aiming to give a positive learning experience, develop theoretical and practical leadership skills. Besides that, IAAS provide the opportunity to students who wants to improve their awareness and knowledge about social issues and different practice of sending and receiving country. In addition, IAAS support student to contribute more to student personal and professional life goals.

THREE CATEGORIES OF IAAS EXCHANGE PROGRAM

1. **The Ceres program:** Internships on farms.
2. **The Archimedes program:** Internships related with Education, research, engineering, management. Most often, Archimedes takes place in companies, organisations, universities and research institutions.
3. **The Libertas program:** These internships are community-based projects, mostly voluntary work.

The minimum duration of an IAAS ExPro internship is 3 weeks, the maximum duration is 48 weeks.

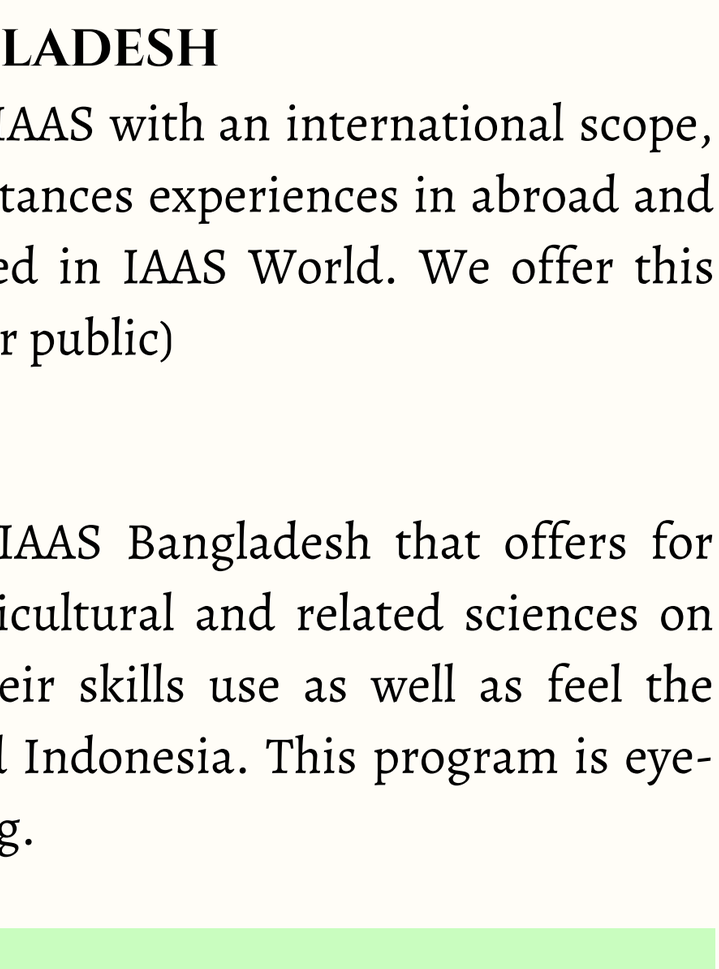
Call for partners

This call from IAAS is open to all agricultural companies and organizations, agricultural farms and research institutes in countries where IAAS is established. If you are interested and believe that your organization could contribute to this program, feel free to contact IAAS.

Contact information

Abidur Rahman Abid
National Exchange Coordinator, IAAS Bangladesh
Email: expro.bangladesh@iaasworld.org

You can contact with IAAS World
Email: **vpexchange@iaasworld.org**
For more details visit here the IAAS website.
www.iaasworld.org/exchange-program/information/



INTERNATIONAL EXCHANGE PROGRAM IN BANGLADESH

International exchange is an internship program that held by IAAS with an international scope, so the students from Bangladesh can gaining working circumstances experiences in abroad and vice versa. The countries that can be used as option are listed in IAAS World. We offer this opportunities to All member IAAS in all over nation (not open for public)

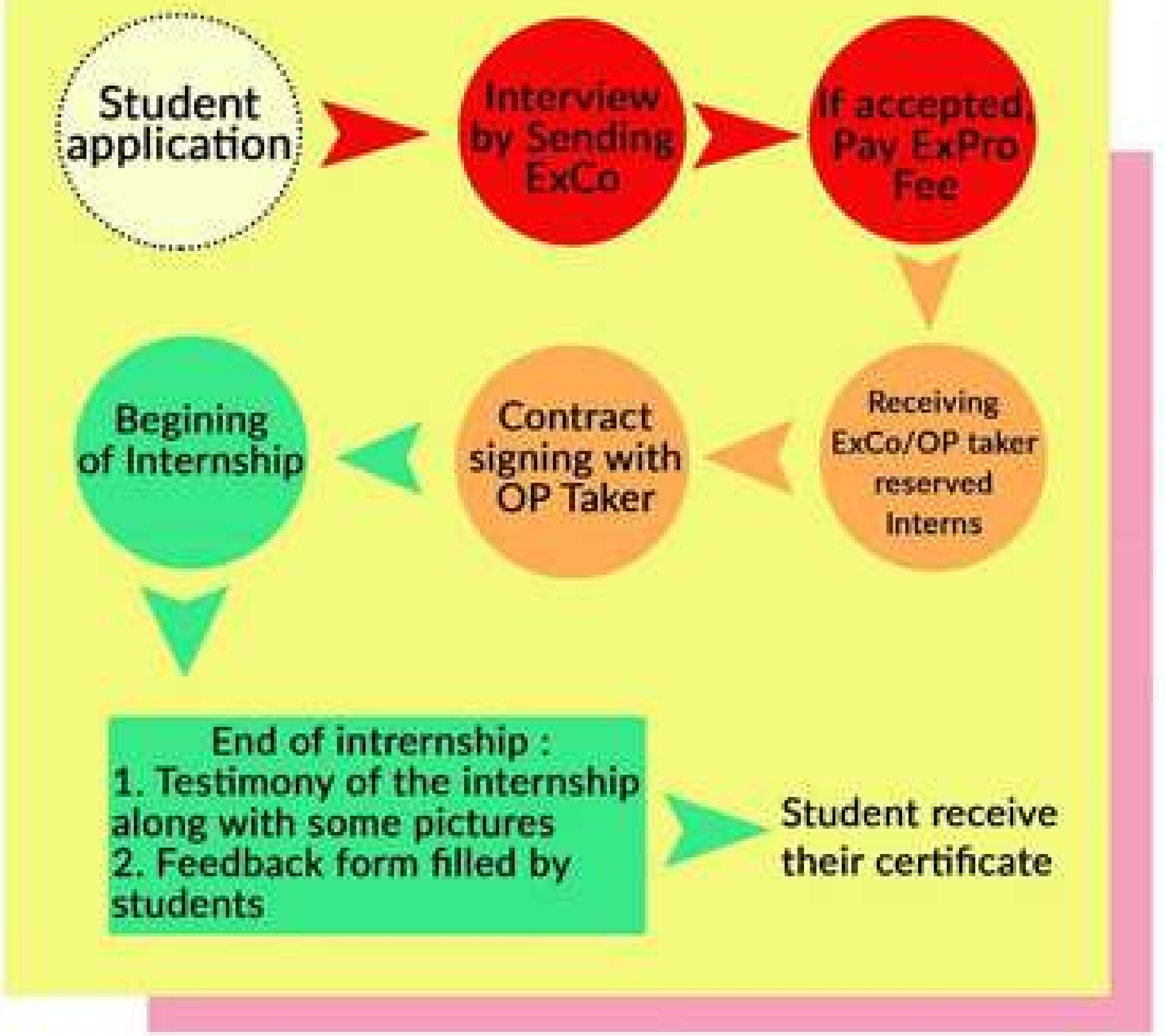
NATIONAL EXCHANGE PROGRAM

National Exchange Program is the main annual activity of IAAS Bangladesh that offers for students who want to learn and understand more about agricultural and related sciences on national level. In this program students apply and make their skills use as well as feel the exchange culture atmosphere between local committee around Indonesia. This program is eye-opening and encouraging them to broaden their personal setting.

LOCAL EXCHANGE PROGRAM FUTURE PLAN

- International/National Exchange Week Bangladesh
- Hosting IAAS World Exco week
- National meeting
- Create 5 International,10 N ational,15 local Intern place

ExPro Application Flow



Files Requirements

These are some files you need to apply for ExPro :

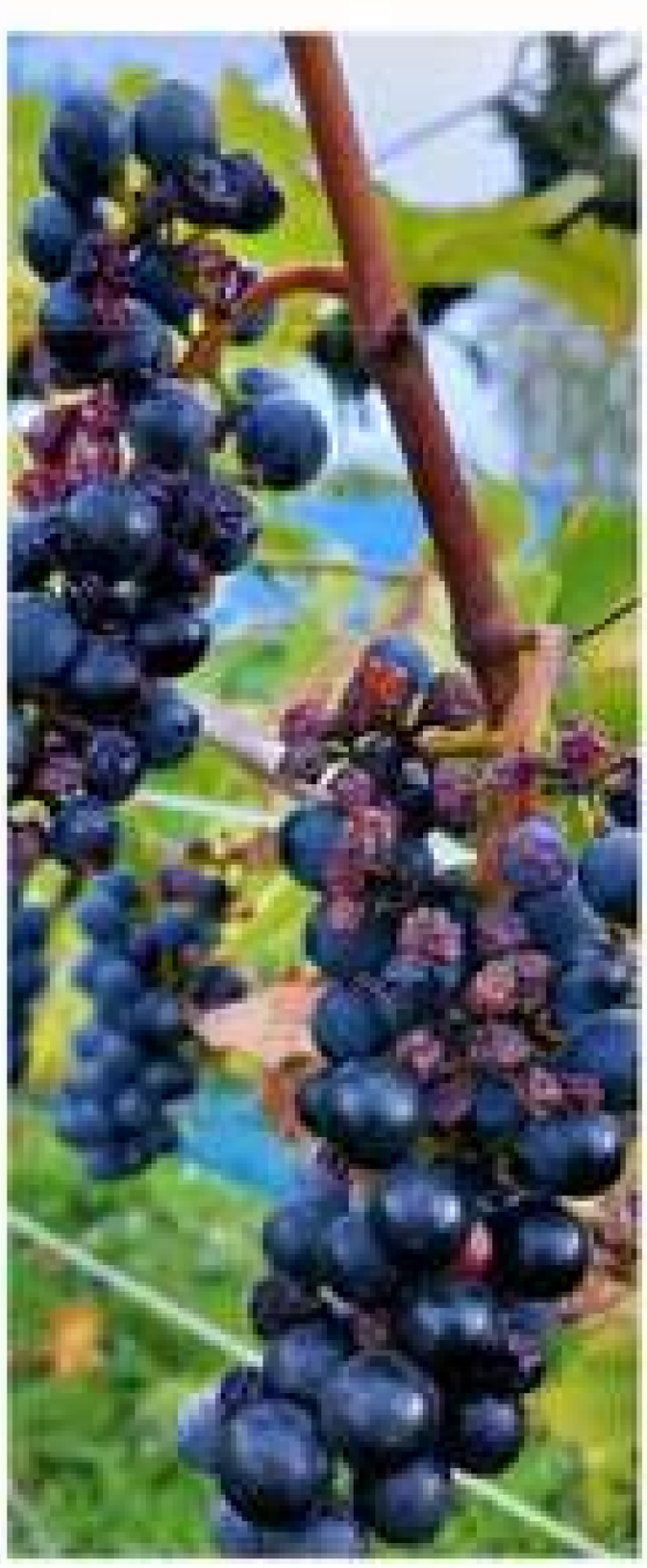
1. Application Form
2. Curriculum Vitae or Resume
3. Motivation Letter
3. Supporting Documents (ex: Language Proficiency)

Country Categories & Fees

A. € 75,-	B. € 75,-	C. € 100,-	D. € 100,-	E. € 100,-	F. € 100,-
Benin	Bangladesh	Bulgaria	Austria	Belgium	Sweden
Democratic Republic of Congo	Chad	Chile	Belarus	France	Switzerland
Nepal	Costa Rica	Croatia	Greece	Germany	United States of America
Niger	Cote d'Ivoire	Egypt	Italy	Japan	
Togo	Ecuador	Gabon	Poland	Netherlands	
	Gambia	Mexico	Portugal		
	Ghana	Montenegro	Slovenia		
	Guatemala	Peru	Spain		
	India	Poland	Uruguay		
	Indonesia	South Africa			
	Kenya	Taiwan			
	Mali	Turkey			
	Morocco				
	Nigeria				
	Paraguay				
	Serbia				
	Tunisia				
	Uganda				
	Ukraine				
	Zimbabwe				

Exchange Program

IAAS Exchange Program is a program that gives opportunities to all students in every IAAS active country for doing internship abroad in the field of agriculture and related science.
Student can learn and experience things that cannot be learned out of course book and get practical skills while discovering another culture.



Aims

- A positive learning experience
- Gain practical skills and knowledge
- Gain inter-cultural competence
- Development of theoretical and practical leadership skills
- Opportunity to apply their personal and professional skills

t is the most common IAAS internship, which organized in farms
ither crop production of livestock. The types that include as
eres are:

- Agricultural Machinery
- Food Technology
- Agricultural Production
- Forestry
- and any types of greenhouse and horticulture

he participant will learn the basic of planting, harvest, soil type
r internal husbandry. Participant could be trained in the dairy
ield or work alongside seasoned farmers. Participant might be
laced in a industry that will expect them to take control the
rocess, product packing, according to the regulation in each
ndustry.

Archimedes

This type of internship will involves working on research institutes, laboratories, management, education and engineering.

1. Research
Participant will have direct interaction while working in the field of research (i.e., taking part in a scientific project), specific skills can be required

2. Education
Participant will have an assignment to teach a subject in a foreign environment. The subject or can be connected with the academic background of participant

3. Management
Participant will gain experience with administrative task

4. Engineering
Participant will be more involved in technical processes

Libertas internship is a type of volunteering internship. It involves with village development and empowerment in the field of education, environmental, agricultural and community development.

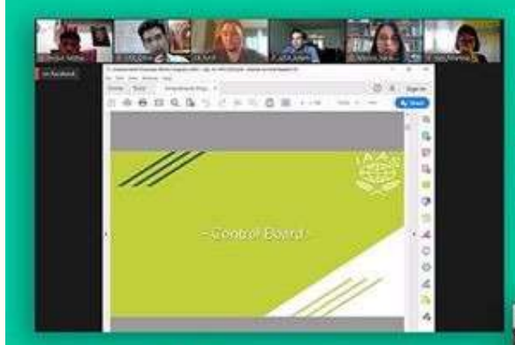
6

IAAS World


The 63rd Online
IAAS World Congress
Evolving in Times of Crisis:
Stepping up our IAAS community
July 18th - 31st, 2020 | Swipe for details!

World Congress Day 1 Press Release!

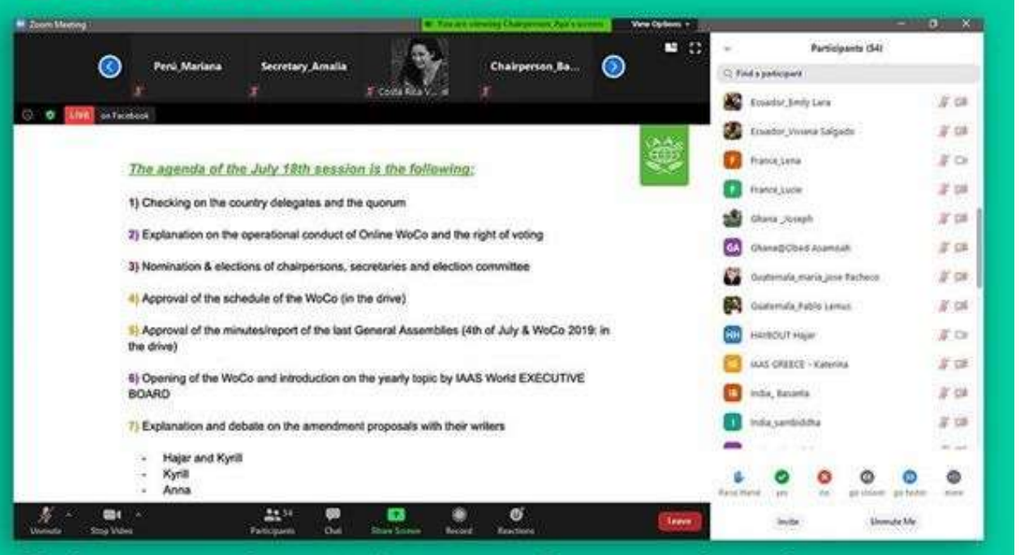
What happened in Day 1?
Swipe now to find out!



The Amendment Proposal Explanation

For about 36 amendment proposal has been explained during day 1. The rest of the proposal will be explained in the day 2 of GA.

Introduction to the Online WoCo.



Chairperson and secretaries approval were conducted during day 1, followed by the amendment proposal explanation for the first part.

#WorldCongress2020

#WorldCongress2020

Statue of Liberty, NYC
United States of America

Day 2 Press Release

63rd Online WoCo 2020

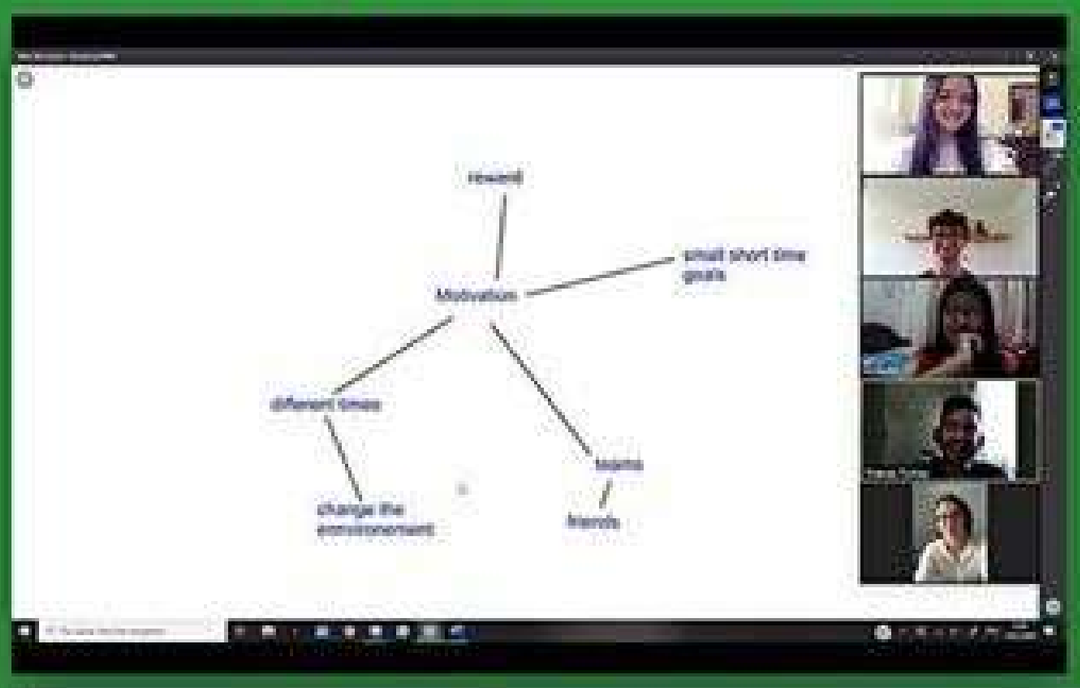
2nd Day of CBL Ammendment

The highlights for today amendment were all about new region, new eb position, and Expro.

Today's session takes up to 5 hours straight of intense discussion and debates. With so many proposals amendment, everyone were very active in expressing their opinion.

WoCo Trainings Personal Motivation & Motivating Teams

Today, Nina Stoop and Stevan Paunovic from ITC just delivered their training sessions about Motivating Teams and Personal Motivation.



Pura Bedugul, Bali
Indonesia

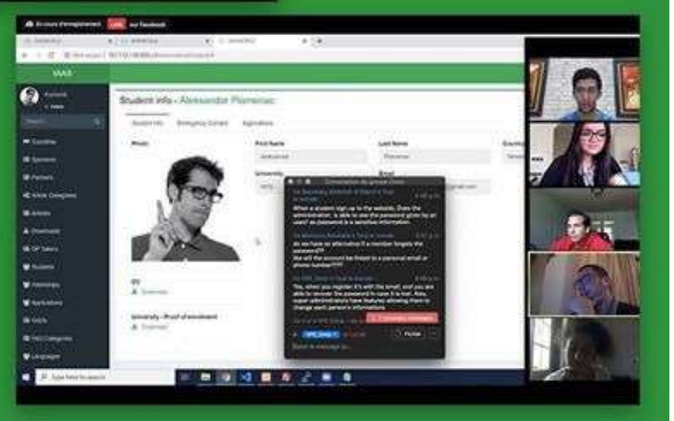
Day 3 Press Release

Swipe now for more!

IAAS Website Overview

The 3rd day of WoCo was started with the presentation about our IAAS wesbite updates that explained by the FireNet, our website developer, directly to all attendees.

New interface, new features and new exchange program application system. The major updates for our new IAAS website is all about new Exchange Program application system and new database management for Expro.



Membership Overview Explanation by the CB of Membership

The 2nd session is about membership overview where the CB of Membership Officer explained everything about our IAAS country membership statuses.

New sections

IAASPerú Rompiendo Barreras

De Gooyer, Amsterdam
Netherlands

Day 4 Press Release

63rd Online WoCo 2020

Vice President of Communication Final Report

After the report presentation from IAAS World President, the session continued to the Final Report presentation by Vice President of Communication, Festus Septian Yosafat, which was done through live presentation.

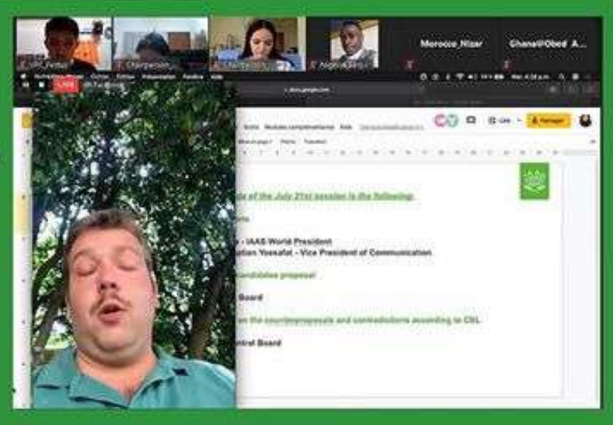
See you in Day 5!
Keep your WoCo vibes stay ON!

EB Final Report Presentation

Day 4 started with the EB report presentation. For the first day of EB reports, IAAS World President and Vice President of Communication IAAS World took the first turn for Day 4.

President Final Report Presentation

The IAAS World President, Diogo Rita, deliver his Final Report by using his recorded video. He explained everything that he did during 2019/2020 term.



Amendment Proposal and EB/CB Candidates Proposal

Done with the VPC final report, the session continued to the amendment proposal approval result that delivered by CB, and short discussion about EB/CB candidates proposal by the EB and CB. This session is the closing session for Day 4.

Mozart Monument, Salzburg
Austria

Day 5 Press Release

63rd Online WoCo 2020

Day 5 EB Reports Part 2

Day 5 of GA was started with the 24h promotion for 24h IAAS that will be happened in 25th July.

24h IAAS is one of our agendas that will happen on the 25th of July.
This event is about Trade Fair that we always did in our IAAS events, but packaged in digital format.
Every IAAS member will showcase their performances 24h from all regions non-stop!
Curious about this event? Stay tuned

Day 5 EB Reports Part 2

Day 5 of GA was started with the 24h promotion for 24h IAAS that will be happened in 25th July.

Vice President of Exchange Final Report

The second final report was presented from the VP of Exchange, Farhate Omar. He started his report presentation with some trivia about Expro. Besides of his report, he also did award for the best Expro Performance countries. Check our Live stream to know who are the awardee of Expro!

Vice President of Finance Final Report

The third final report was presented by the VP of Finance, Marie-Agnes Fine. During the GA, Marie wasn't present and we played her presentation video about her final report as well as her budgeting forecast for the next term. If you wanted to understand more about Marie's report, check out our yesterday live stream on our Facebook!

Get 2 Know Our Workshops Facilitators!

63rd Online WoCo 2020

Events and Projects Workshop

Get to know **different events and activities** that you can organize in your local committee!

Meet your facilitators!


Omar Farhate
IAAS Morocco


Angela Sievernich
IAAS Netherlands


Aya Mounier
IAAS Morocco


Nina Stoop
IAAS Belgium


Nataia Aguilera
IAAS Paraguay


Mitzi Aguilar
IAAS Mexico


Alawy Syaiful Anam
IAAS Indonesia

Fundraising Workshop

Running out of ideas for your fundraising activity? Or do you feel that your **current fundraising activity still not effective**? Don't worry! This session will help you to overcome all of your fundraising problems!

Meet your facilitators!


Marie-Agnes Fine
IAAS France


Hajar Haybout
IAAS Morocco

Brand & Communication Workshop

Ever wondered how you gonna communicate about **IAAS** to the people **in the right way**? How will you **perceive yourself** as **IAAS Brand Ambassador**? Find the answers in this session!

Meet your facilitators!


Festus Septian Yosafat
IAAS Indonesia


Anggela Artica
IAAS Peru

Thank you for 171 registrants!

Workshops Date and Time:*

- **Projects and Events** — July 27th at 14:00 GMT+0
- **Fundraising** — July 28th and 30th at 17:30 GMT+0
- **Brand & Communication** — July 31st at 15:00 GMT+0

***More information:**

For those who already registered to our workshops, you will receive an email containing the information about the workshops that you applied for. Make sure to check your email frequently for more information about the workshops.
P.S. The availability for Spanish workshops will be informed through email.

Contact vpcommunication@iaasworld.org for inquiries.

#ScaleUpYourself!

see you in the workshops!


HUMANSOFIAAS
24IAAS
READY FOR
24
THE FIRST IAAS VIRTUAL TRADE FAIR
24IAAS
Upcoming Line Up!
Swipe to check out!
Día de Muertos Festival
Mexican Day of the Dead Festival
EACH WITH THEIR OWN STY
PISCO MALPASC
1,2,3... BREAK
AMERICAN SPORTS
¡FOR LOVERS OF SWEET
CHOCOLAT PROCESS
MY CULTURE IS MY IDENTITY
TRADITIONAL DANCES
NEVER FORGET YOUR ROOTS
NDIGENEOUS AMERICANS
O A NEW BEGINNING!
EW YEAR'S VE PARTY
SUNDAY JULY 26 AT 05:00 (GMT+0)
JOIN IN TO KNOW MORE ABOUT:
IAAS
SUNDAY JULY 26 AT 07:00 (GMT+0)
JOIN IN TO KNOW MORE ABOUT:
USA
SUNDAY JULY 26 AT 00:00 (GMT+0)
OIN IN TO KNOW MORE ABOUT:
ECUADOR
¡HERE'S TO YOU AND ME!
PERUVIAN COOKING AND DRINKING CLASS
COOKING IS LOVE MADE VISIBLE
COOKING CLASS
HAPINESS IS HOMEMADE
TORTILLA MASTERCLASS
¡DANCE IS ART IN MOTION!
DANCE CLASS
DANCING, A UNIVERSAL LANGUAGE
DANCE AND COSTUMES
GIVE LIFE SOME COLOR
TYPICAL BRACELET
SUNDAY JULY 26 AT 02:00 (GMT+0)
JOIN IN TO KNOW MORE ABOUT:
IAAS Perú
SUNDAY JULY 26 AT 01:00 (GMT+0)
JOIN IN TO KNOW MORE ABOUT:
COSTA RICA
SUNDAY JULY 26 AT 06:00 (GMT+0)
JOIN IN TO KNOW MORE ABOUT:
IAAS GUATEMALA
KEEP CALM AND ENJOY
PARAGUAYAN COOKING AND DRINKING CLASS
ZOOM RUNAWAY
Moroccan Traditional clothes
TO SPICE UP LIFE
COOKING CLASS
LACE, SPIDERS AND LOVE
MYTHS AND LEGENDS
TAJINE MASTER CLASS & MOROCCAN TEA
CANVAS OF LIFE AND COLOR
FOLKLORIC RESENTATION
LIVE MOROCCAN MUSIC
SUNDAY JULY 26 AT 03:00 (GMT+0)
JOIN IN TO KNOW MORE ABOUT:
IAAS PARAGUAY
Sunday July 25 22:00 - 00:00 PM (GMT+0)
JOIN IN TO KNOW MORE ABOUT :
IAAS MOROCCO
SUNDAY JULY 26 AT 04:00 (GMT+0)
JOIN IN TO KNOW MORE ABOUT:
IAAS México

Day 6

Press Release

Swipe to check out!

Barong Mask Festival

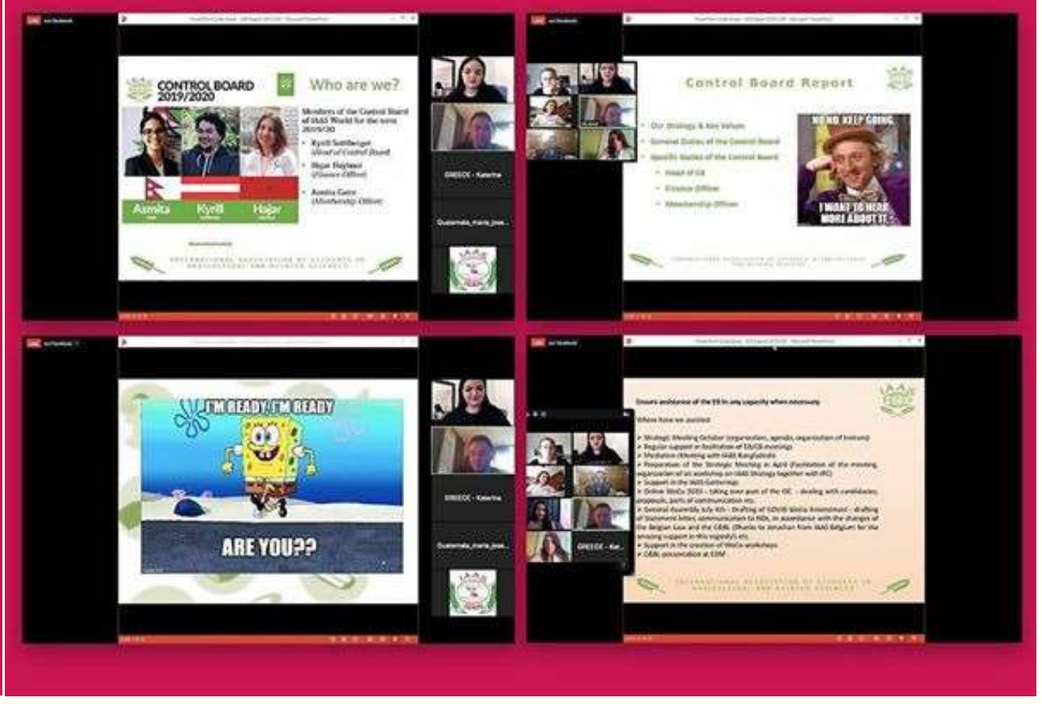
Indonesian Balinese Festival

Flash Mob and EB Evaluation Discussion

After the CB's report, the session continued with EB Evaluation Discussion about EB salaries based on each EBs performance. Before entering the discussion, everyone in GA decided to have a Flash Mob dance Macarena to keep the GA atmosphere more tense.

IAAS World Control Board Report

Day 6 started by the IAAS World Control Board's Report. The report was delivered by all 3 CB's (Kyrill Sattlberger, Hajar Haybout, and Asmita Gaire) in a fun way with memes and emoji quiz.



Day 7

Press Release

Swipe to check out!

Holi Festival Colours

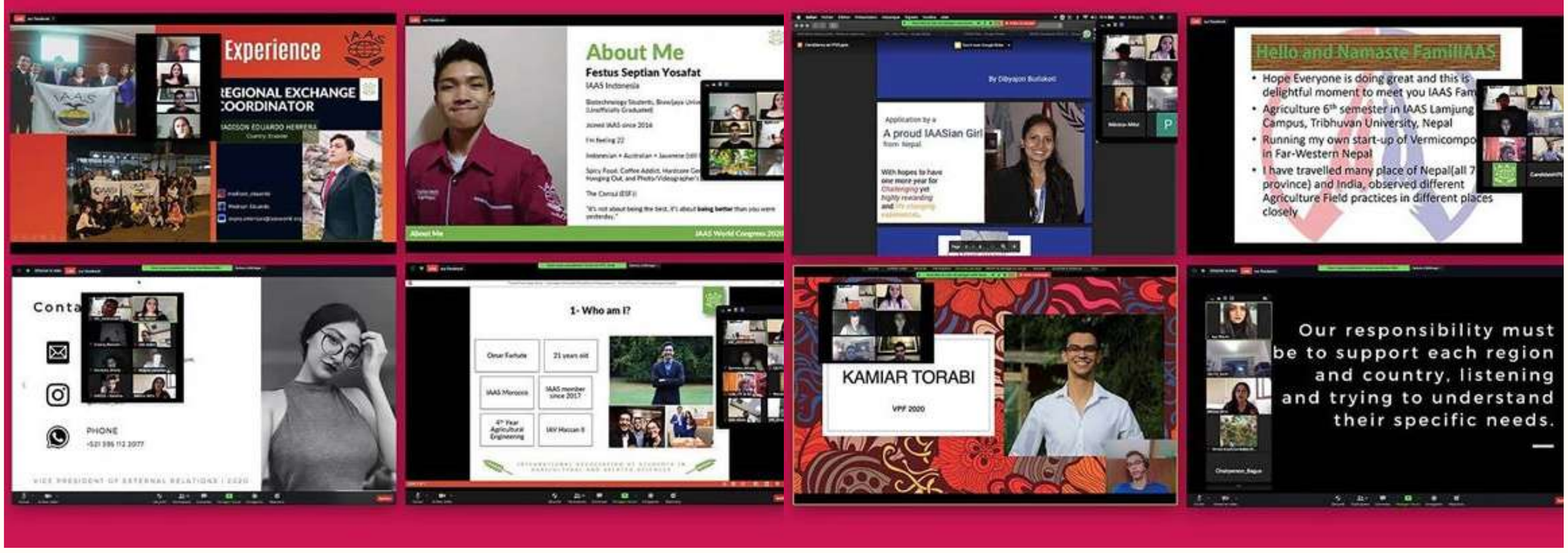
Indian Festival

Presentation for EB/CB Candidates 20.21

Day 7 started with the presentation for the new IAAS World EB/CB Candidates for 20.21. There are 15 candidates in total (9 Executive Board Candidates and 6 Control Board Candidates). The GA took more than 5 hours of presentation and Q&A sessions.

Presentation for EB/CB Candidates 20.21

The candidates are Omar Farhate (President), Diogo Rita (President), Eduardo Herrera (VPE), Festus Septian (VPC), Kamiar Torabi (VPF), Mitzi Aguilar (VPER), Shreya Aryal (VPER), Abdullah Maruf (VPER), Dibya Burlakoti (VPER), Aya Mounier (CB), Amal Ibijbijen (CB), Osinubi Benjamin (CB), Biddhya Pandey (CB), Hemant Raj (CB), and, Rifa Naziihah (CB)



Day 8

Press Release

Swipe to check out!

Chicago Turkish Festival

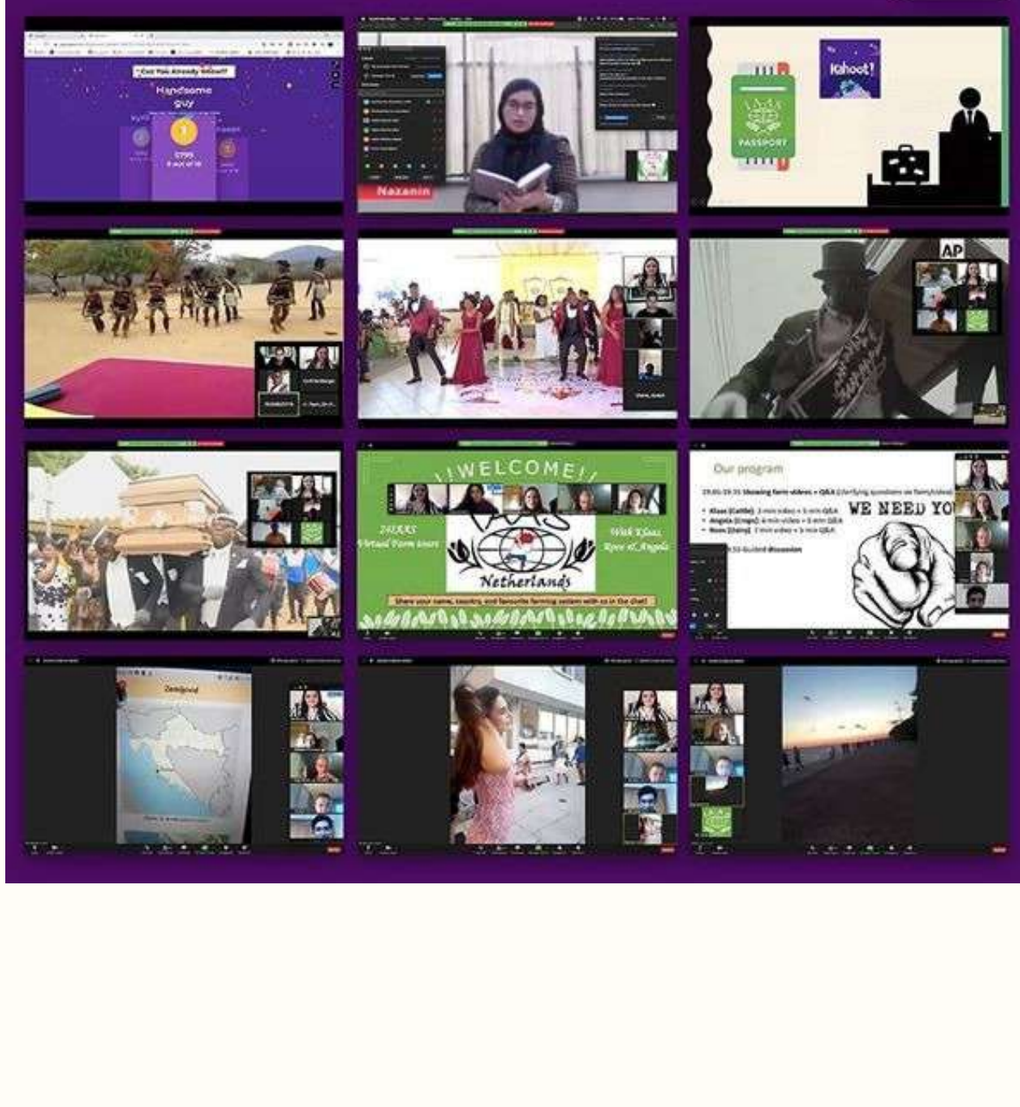
Turkish Festival

Regional Presentation and Host Committees Presentation

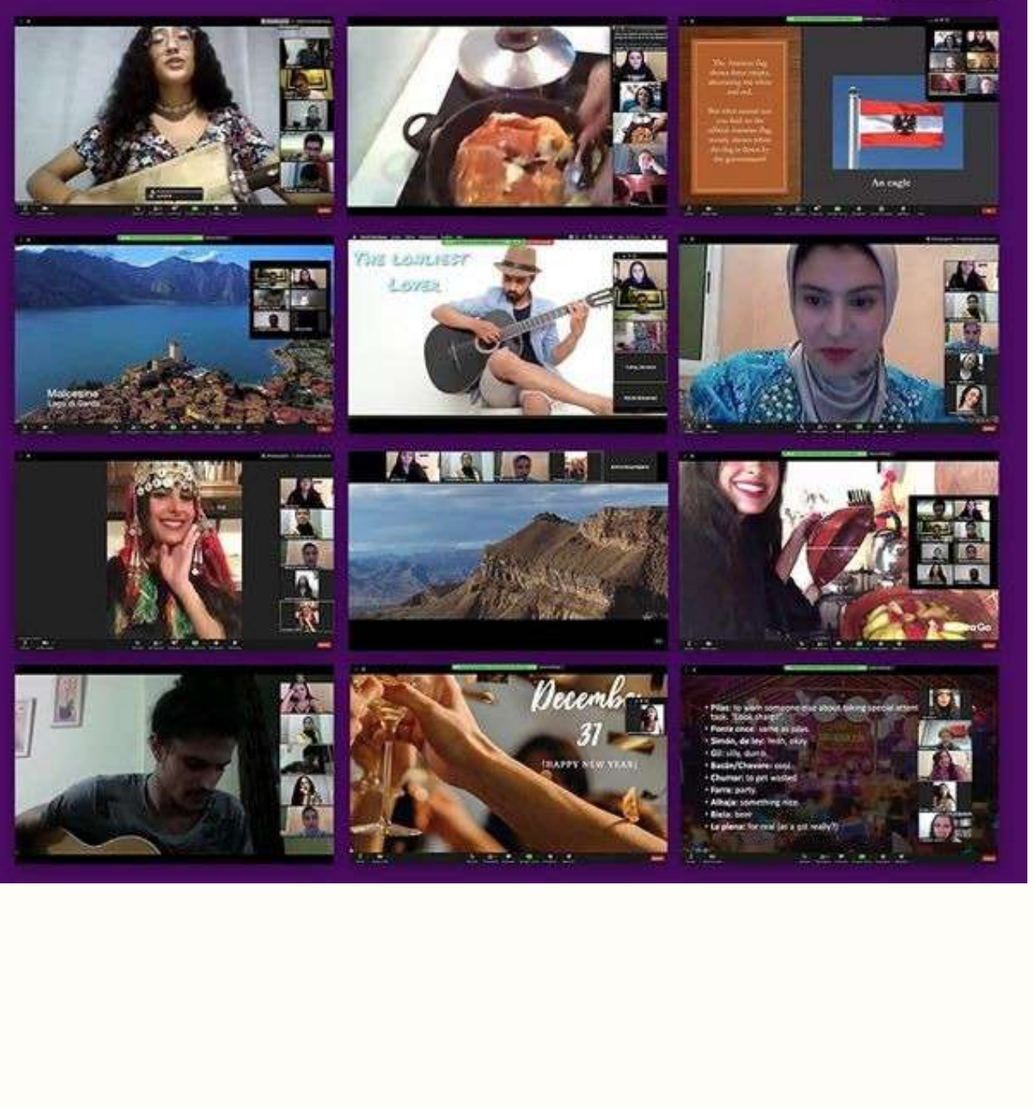
The Day 8 GA was started with the presentation for ExCo Meeting 2021 Host Candidate by IAAS Guatemala and WoCo 2022 Host Candidate by IAAS Morocco. The GA was continued by the Regional Reports from each Regional Directors of IAAS.

It's time for 24IAAS! The first IAAS Virtual Trade Fair!

All 24IAAS Moment



All 24IAAS Moment



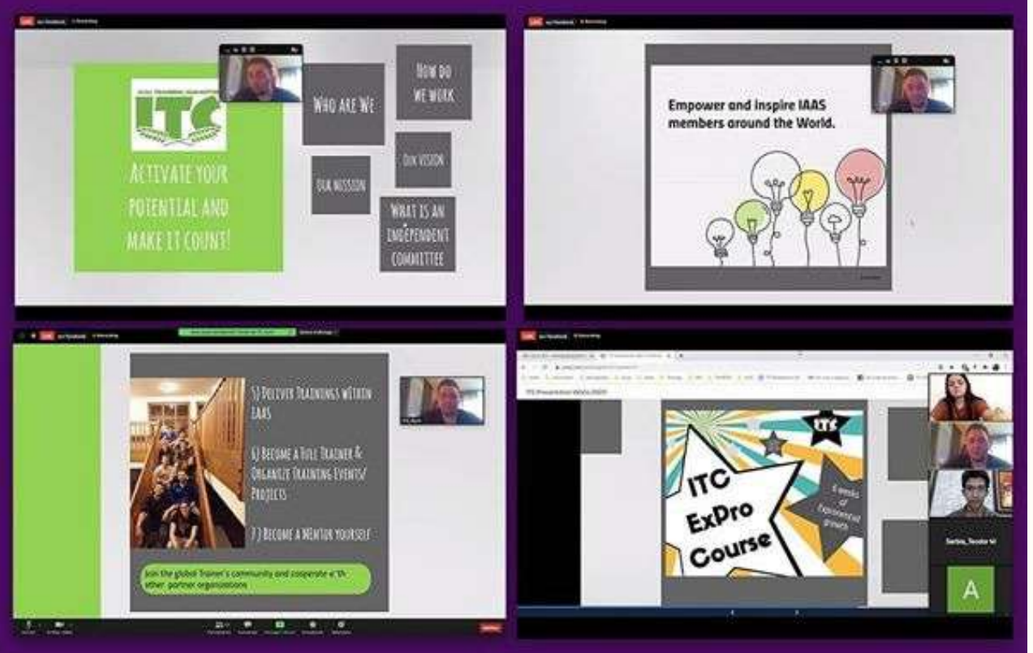
Guatemalan Mayan Costume
Guatemalan Festival

Day 9
Press Release

Swipe to check out!

ITC and Acknowledgement of Newly Elected Head of ITC

Day 9 GA was started by the IAAS Training Committee. The presentation was all about ITC introduction and workplan from the newly elected Head of ITC, Kyrill Sattlberger.



Wrap up Day 9! Thank you #FamilIAAS!

IAAS 2020 Evaluation, IAAS 2023 Progress, and Global Projects Progress

The GA was continued with the presentation of IAAS 2020 Evaluation by the EB representatives Festus (VPC) and Omar (VPE). And then continued with the presentation about IAAS 2023 Strategy Roadmap by Lyda (ITC). Lastly, the presentation about Global Projetcs presented by Festus (VPC).

Extraordinary Round!

Urgent Round

For CB 20.21 Candidates
Swipe now for details!


#63rdIAASWorldCongress
#WeAreOne

7

Mystery behind Agriculture

The Treasure-We're Gradually Loosing

Frogs have the importance to inhibit the spreading of diseases like "Dengue" "Chikungunya" by eating larva of mosquito.

About 10-12 years ago from now the calling of frogs in Bangladeshi villages was common in the rainy season. The calling of frogs indicates that the rainy season is knocking at the door. But the scene is becoming disappear and very rare with the flow of time. According to IUCN (International Union for Conservation of Nature), an international organization for conserving nature about 49 varieties of frogs is available in Bangladesh now. But all of them are in danger line and their numbers are getting deteriorated day by day. As the decreasing the number of frogs, agriculture sectors facing very many problems in these days.

Frogs have an importance role in sustainable agriculture, environmental conservation, and ecosystem. Frogs consume insects in agricultural land and farmers don't need to use pesticides and as a result, farmers get benefited economically. But as the decreasing the number of frogs
in these days, farmers need to use extra doses of pesticides which cause food toxicity. Food toxicity caused the disease like "Kidney Damage" "Liver Damage" "Cancer" etc. According to the research of FIU (Florida International University), frogs consume twice the amount of insects than its body weight in a day. Frogs average life span about seven years and it can save crops estimate about four lakh and twenty thousand TK.

Frogs have the importance to inhibit the spreading of diseases like "Dengue" "Chikungunya" by eating larva of mosquito. In recent years mosquito-borne diseases like "Dengue" "Chikungunya" etc. contamination increasing very rapidly due to decreasing the number of frogs. The main causes of decreasing frogs using extra doses of pesticides and chemical fertilizers, filling of water bodies, and destroying their habitat. Farmers often uses more doses of pesticide and fertilizers unconsciously to earn more profit and destroy their habitat. Due to civilization natural habitat and agricultural land become deteriorated day by day, it's also another reason for declining numbers of frogs. Some dishonest people catch frogs and smuggle them abroad. And some people from tribal communities eat frogs. Climate change is another factor of declining frogs. Unseasonable rain, drought etc. hampers the reproduction and that's why the numbers of frogs decline gradually. Frogs play an important role in environmental protection, sustainable agriculture, and inhibit the disease spreading. Now it's the right time, we should raise voice to protect frogs for the betterment of the future world.

Md Ahaduzzaman Ahad
Rajshahi University

Ways to Overcome Obstacles in The Way of Becoming an Entrepreneur

The person who takes risk of possible financial loss with a belief of profit while starting up a business is said to be an entrepreneur.

An entrepreneur has to face many hindrances for economic innovation. Some methods to conquer the barriers are stated below:

1. One of the first tactics should be building a strong employee asset base for the enterprise;
2. Having proper knowledge of taxation, governmental rules, lending requirements, environmental
3. issues and so on;
4. In order to train, organize, development and sell product, adequate money arrangement is a must job;
5. For entrepreneurial spirit to attain, the entrepreneur need to know the existing marketplace scopes and possibilities;
6. An entrepreneur should have a can-do attitude with eye for expectation. Otherwise millions of opportunities are likely to go in vain;
7. Correct education and training (technical skill, managerial skill, entrepreneurship) serve as robust incubator for setting up a business;
8. To face obstacles, an entrepreneur must have profound leadership skill which includes learning and doing before leading;
9. An entrepreneur will never rush to something just because it looks praiseworthy and attractive as it may be lethal;
10. Success rate in a start-up business is proportional to experience in related business;
11. To avoid barriers, entrepreneurs need to make decision so that they do not miss the boat as well as not sink it;
12. An entrepreneur must take financial risk and psychological too. He should take initiative and accept the probability of possible failure.

Setting up a new business is not as easy as it sounds fascinating. To be successful, entrepreneur should stick to his plan, love his plan, believe it wholeheartedly and must work according to it

Farhana Yasmin
University of Chittagong

My Muddled Glory

Yet, there was hardly any change in peoples' perception. "How would you become a doctor from an Agricultural university?" After I explained it to them, they would say, "Ohh, doctor of Cow ! "

It was back in 2013 when I got admitted into Sher-e-Bangla Agricultural University. Even then, neither my university itself nor my subject knowledge of Animal Science and Veterinary Medicine was very rich. There were a lot of vague perceptions floating around out there.

I took medical preparation in admission test. Like today, People had an intense desire to become physicians, and I was no exception. The almighty was not stingy in fulfilling my desire, but it was done in a slightly different way! He made me an Animal physician, not a human one. At first I was very upset about this, especially when I used to see people having no clear idea about this field. Although they knew very little, they kept asking me some weird questions that would make me a little embarrassed at first; I was suffering from inferiority complex.

As the days went by, my love for this subject continued to grow; the store of information also got enriched. The lowliness began to disappear from my mind. Yet, there was hardly any change in peoples' perception. When I told them about my future saying "I'm going to be a veterinarian in the future", they happened to only pick the word "Doctor". Then they would pose in amazement, "How would you become a doctor from an Agricultural university?" After I explained it to them, they would say, "Ohh, doctor of Cow ! "

Well, of course, I know this from the outset what I was really going to become. Not just of cow or cattle, I am a goat doctor, a chicken doctor, a Royal Bengal Tiger doctor, a bird doctor, a buffalo doctor– I was, in fact, going to be a doctor of all the animals of the planet. Even if the Dinosaurs weren't extinct, I would be their doctor as well.

I did not have to suffer any less to go north in this medical profession. I needed to handle the burden of 221 credit hours to complete my under-graduation. I also had to master difficult subjects like Anatomy, Histology, Pharmacology, Medicine etc. I couldn't even attend many social events due to the pressure of exams and viva. I often had to listen to those people saying "What's the pressure in an agriculture bachelor?"

But the story is not just about the pressure of studying that I have endured. Thanks to being a student of Veterinary Medicine, I have been able to go on tours to different places all over Bangladesh as requirement of different courses. Much has been added to the hold of experience; not to mention those beautiful moments spent with my classmates.

We went to West Bengal University of Animal and Fishery Sciences, Kolkata for internship. Students of very few subjects in the country are fortunate enough to have this opportunity.

Along with that there was a lucrative internship allowance. This experience was invaluable as we came across a lot of technological and managerial issues that had certainly broadened our horizon of knowledge.

Source: Iskon Remedies

Now let's talk a little bit about our contribution to the development of the country's economy or social context. Let's take a look at how much this sector has contributed to GDP.

According to the GDP data of year 2018-19,

GDP (2018-19)	**In Current Price**		**In Constant Price**		**Contribution in Agricultural GDP**
	Price (million tk)	Rate (%)	Price (million tk)	Rate (%)	
Agriculture	3,223,938	13.32%	1,451,370	13.65%	
Agricultural Crop	1,723,298	7.12%	751.185	7.06%	55%
Livestock	432,151	1.79%	155,978	1.47%	14%
Fisheries	742,747	3.07%	371,462	3.49%	22%

Moreover, according to the data provided by the Ministry of Fisheries and Livestock, about 80% of the total animal protein supply of the country comes from the livestock sector. According to the report - Fish production - 43.81 lakh tons, Meat production - 75.14 lakh tons, Milk production - 99.23 lakh tons and Egg production - 1711 crore.

Today we are on the path of becoming self-sufficient in food, meat production and in milk-egg production. We are also fifth in the world in goat production and have already emerged as a role model in fish production. This sector has contributed commendably for the finesse of the economy. In the Corona situation, we have got a glimpse of what a great driving force the agriculturists are for a country, a society and a state.

After walking for a while along the way of my student life, I came to realize that I would not be bothered if you or I ever came across a picture of a group of students studying in a "muddy campus" floating in the imagination, and if you sniffed at it. Truth to be told, I like the smell of that soil. And in a world covered with bricks and stones, being able to stay close to the ground is also a matter of good fortune.

Nasrin Akhter
Sher-e-Bangla Agricultural University

Eutrophication: A great challenge for the world to protect water resources

Eutrophication basically refers to increase of nutrients in the water body particularly increases the growth of plants in the water body. This happened because of running off nutrients from terrestrial environment through human activities. I is a matter of concern that agriculture contributes a larger portion through fertilizer application on land which is run off along with the irrigation water from the land and went to the watersheds and increases the nutrient level in the water body.

So, there might be a question come to our mind that what happened if the nutrient level increases in the water body? When nutrient levels increases in the water sources, it continues to supply excessive food to the Algae and there is an explosion of Algal growth which is known as an **Algal bloom**. When those algae are dead, they got decomposed in water and made a layer in the water surface as well as lower the oxygen level as they exploit oxygen from the water for their decomposition. When the oxygen level decreases it creates a **dead zone or anoxic hypoxic zones** in the water body .As a result the ecosystem of this water body destroyed and causes the death of living aquatic plants or animals.

It is a matter of concern for all over the world, specially for those countries which main occupation is agriculture like Bangladesh. In Bangladesh, most of the lakes, ponds are become unavailable for excessive algal bloom. The only way to restore water sources from not being a dead zone, we need to apply Best Management Practices (BMPs).

Though Bangladesh is an agriculture based developing country but many of the farmers are not aware of eutrophication as lack of knowledge. They also have lack of knowledge about BMPs which causes destruction of the water body's ecosystem. The purpose of BMPs is to stop or reduce the amounts of nutrients went to the watersheds.

There are many BMPs for conserving the watersheds. Some of them are – using subsurface tile drainage, Filter strips, Riparian buffer system and so on. I prefer to discuss some of the BMPs here.For Subsurface tile drainage, have to put plastic tiles on the sub-surface of the ground. These tiles will collect all excessive irrigation water which is enrich with nutrients and all excessive water is collect in a canal like system .

We can plant crops on those canals and those plants absorb most of nutrients and reduce the nutrient level on that irrigation water. Then these waters can enter the water body with no nutrients or a little amount of nutrients.

Filter strips is the areas of plants (grasses) that are planted along the edge of a field that we're growing crops. As runoff moves from the field towards the water body, it passes through this filter strip and filtered. Sediment falls out and is collected in the filter strips and plants which in the strips take nutrients. It helps to keep the sediment or nutrients to enter the water body. It helps to slow down the water flow and gives time to water to infiltrate.

ead zone, Bangladesh, Best Management
age, Filter strips, Riparian Buffer System

Remove 50% of nutrients and 75% of sediments that are flowing through them.

If we come to talk about Riparian buffer system, it is process of buffering the waterway from any possibility that nutrients sediment could move from our agriculture area.

PUJA SARKAR MOLY
SHER – E-BANGLA
AGRICULTURAL UNIVERSITY

Source: Norwegian SciTech News

Blockchain Technology in Agriculture

Agriculture, the backbone of the economy, plays a significant role in Bangladesh's economic development and growth. Around 47 percent of the working population depends on this sector. It plays a vital role on food security and poverty mitigation. Agricultural sectors are facing a major challenge of continuously growing population to feed and employ. A UNDP report says, about two million people are being added to the population every year, and the demand for food is expected to increase by 35% in 2030. This would require a more proficient production system and supply of a nutrient-rich diet to meet the demand of the growing population.

From the inception till now, with the advancement of science, the agriculture sector has experienced many technological changes and there is still a lot of opportunities to implement innovative ideas and solutions for better productivity and efficiency. In recent years' different types of technology has introduced in the agricultural sector. One of them is 'Blockchain technology'.

What is Blockchain?

A blockchain is a digital system of recording data that resembles a ledger that is distributed among various users or across the entire network to securely register irreversible transactions. To improve sustainability and productivity, the use of data and information becomes increasingly crucial for the agriculture sector. The blockchain technology can track the paternity of foods and thus helps to build a reliable food supply chain and creates trust between manufacturers and consumers.

How can this technology boost up agricultural activities in Bangladesh?

How does the Blockchain work?

All the transaction details, data, and information stored in the ledger are called blocks. These blocks are irreversible, hard to change, or hack. All these strong features make it possible to develop this common platform for the various network (i.e. farmers, consumers, retailers) where they can register and share their information with maximum safety, transparency and speed. In a blockchain, one has freedom to input data and approve or reject any information. Only the validated data gets recorded into blocks. After that, the data gets organized in a chronological chain which cannot be changeable by anyone. With blockchain technology, people can put information related to crop production system to enable transparent and trustworthy source of information for the farmers. Farmers can get instant data related to production systems (like seed quality, soil moisture, weather, and climate-related data, payments, demand & sale price, etc.) all at one single platform.

Possible use cases of Blockchain technology in agriculture:

Crop and Food production:

Technology has a significant and positive impact on farming efficiency and productivity. The blockchain is set to make farming practices sustainable by optimizing various farming resources. The most prevalent problem faced by farmers all over the world is crop failure.

It usually occurs due to unfavorable climatic conditions and pest infestation. Blockchain technology helps farmers to monitor factors like soil conditions, pest conditions, weather conditions, etc. Farmers can get a clear picture of these factors and can take necessary steps to protect crops and increase
productivity.

Agricultural supply chain:
Blockchain technology increases the efficiency and traceability across the agricultural supply chain. Now a day's consumers are more conscious about food standard and they want to know where their food comes from. By using blockchain technology consumers can easily know exactly where their food originated, who is the producer, and how fresh the food is.

Increasing traceability of the supply chain will have a significant impact on reducing food fraud, false labeling, and eliminating intermediaries out of the process to ensure farmers get paid fairly for their hard work. Moreover, consumers get to know exactly what they paying for. Traceability will also help farmers to record and update their crop status, track them through the process of planting, harvesting, storage, and delivery by using an app on their smartphone. Thus they can see the exact status of their products and make any adjustments if necessary.

Controlling weather crisis:
The main inconvenience faced by farmers during crop production is unpredictable weather conditions. Therefore, predicting and monitoring weather conditions are the prime need for crop survival and production. Agriculture weather stations generate and send essential information such as soil temperature, air temperature, rainfall, wind speed, relative humidity, atmospheric pressure, etc.

All of these parameters are recorded, analyzed, and saved in blockchain. Farmers can easily get these data from blockchain and take necessary steps in advance.

Fair payment for farmers and managing agricultural finance:
One of the major challenges of agricultural sector is managing financial, accounting and administrative information. The inability to access financial services can have an adverse impact on the performance of agricultural value chains. Blockchain technology makes data management more transparent and accessible, as well as efficient. Blockchain technology allows farmers to connect directly with retailers, it would completely eradicate the need for middlemen. Therefore, farmers would be able to receive a fair price for their products.

We cannot abnegate the contribution of Agricultural sector to our economy and GDP. But our
agricultural production system, marketing, processing, and value chain is still not working systematically. So a structural, coordinate system is necessary to mitigate these problems. Many initiatives have already taken by Government, NGOs, and many private sectors to digitalize agricultural sectors and develop a common platform to connect farmers directly to consumers. Blockchain technology can be used to build such type of platform and the problems might be solved. Digitalization of the agricultural sector is inevitable to achieve Vision 2021, SDG goals 1, 2, and 8, as these goals are highly linked with agricultural sectors..

Md. Masudur Rahman
Sylhet Agricultural University

PLASTIC
COST AGRIC

Source: Robert Marvel Plastic Mulch

In the present situation of globalization and health awareness demand of the virtuous horticultural crops has raised worldwide. But many nations are dealing with various challenges such as depending on the heavy use of fertilizer, pesticides, irrigation and numerous agricultural inputs, which are constantly degrading and polluting the quality of soil, water and our environment. Application of excessive irrigation is causing soil erosion, soil salinity and dropping of ground water levels. Due to climate change, many parts of the world are experiencing the drought. Promoting water use proficiency without increasing manufacture expenditure is an ongoing target in crop production system. In order to limit degradation of soils, water and other natural resources and for environmental safeguard, we need to adopt the conservation practices. Mulching is one of the conservation practices via which these targets can be attained.

Original meaning of 'Mulch' is something that is soft and is beginning to decay. Mulching is a manner of covering the soil with organic or inorganic substance and make favorable conditions for plant growth, development. This manner prevents water loss by evaporation, hinders weed growth and promotes soil productivity. Additionally it decreases input expenditure. Application of mulch is the magic to any vegetable field or orchard, in particular during a drought period. Similarly, it is very effective for garden or orchard in semi-arid and arid regions. There are many types of mulch materials like natural, synthetic, organic, inorganic mulches. The practice of covering the soil with grass clippings, plant leaves, bark chips, wheat or paddy straw, compost etc. is common in many countries of the world. But now due to the commercialization and modernization of agriculture, plastic mulching is widely used.

Plastic mulching is one kind of inorganic mulching. In this method, row upon row of seed beds are made after preparing the land with required amount of fertilizer. The distant between two seed beds need to be at least 30 cm. small trench should be made around the periphery of the mulching area to facilitate anchoring of the mulch sheet. Then the seed beds need to be covered with plastic sheets and the end should be buried in the ground to keep it intact. The mulch sheet should be held tight without any crease. Then seeds or seedlings are planted after making holes in the plastic sheet at certain distance. After planting no extra care is required. After the plants have grown and harvest has been completed, the plastic mulch should be removed.

Some advantages of plastic mulching is given below:

- It prevents direct evaporation of moisture from the soil and in this manner reduces water losses. The evaporation from soil surface was estimated 25-30% of total evaporation of crop land.
- By evaporation reduction, it hinders the rise of soil containing salts.
- Plastic mulching can facilitate fertilizer placement and decrease then wastage of plant nutrients through leaching.
- It can also grant an impediment to soil pathogens.

MULCHING- A LOW CULTURAL PROCESS

- Plastic mulch inhibits the weed growth by interrupting light penetration to the soil surface and reducing the use of chemical weedicides.
- Plastic mulch preserves a warm temperature even during night time which enables seeds to germinate rapidly and establish a sturdy root growth system.
- Additionally it minimizes runoff and soil erosion over the.
- Lower weed appearance significantly enhances water use proficiency. Higher water proficiency would help to reduce the input expenditure.
- In addition, it affects the human in case of economic, aesthetic and ease of
- intercultural operation and weeding.
- Plastic mulching may initially cost more but they are more efficient as they don't need to be reapplied as repeatedly as organic mulches.
- Plastic mulch helps crops avoid direct contact with soil, this outcomes in the plants being cleaner, which is desirable for fruits such as strawberries.
- As the list above shows, the usage plastic mulch for commercial crop production yields has several positive outcomes. Despite of being much effective for plant growth, plastic mulching has some drawbacks too.

These include followings:

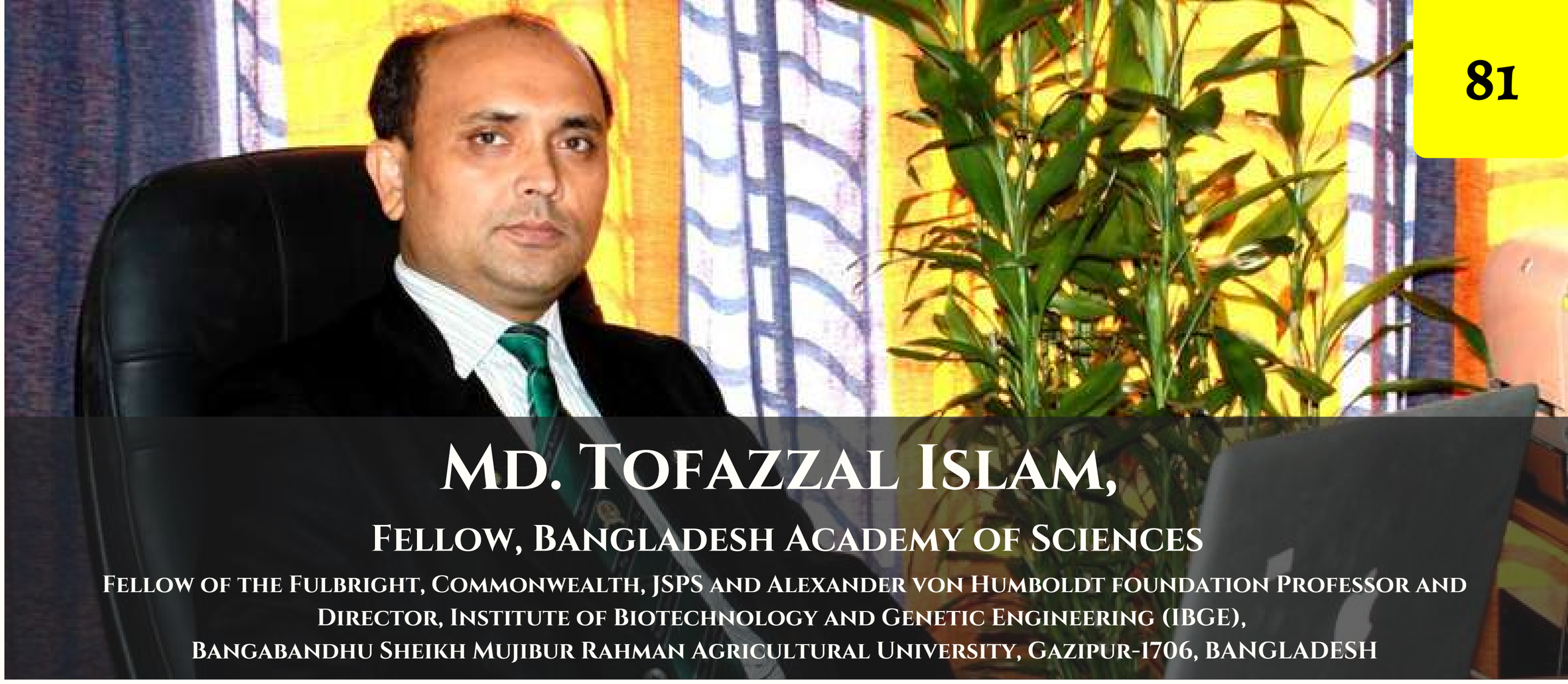
- They are expensive to use compared to organic mulches.Difficulty in application of top dressed fertilizer.
- Cannot be used more than one season using thin mulches.
- The edges of the mulch, which are buried to secure the mulch to the soil, remain intact and emerge as a litter problem when brought to the surface during the post-harvest ploughing.
- Plastic mulching is not environmentally safe process.

The main problem regarding this process is that plastic is not environmentally safe as it doesn't break down by soil organisms. An alternative to plastic mulch aimed at eliminating the necessity of removal and disposal is biodegradable plastic mulch. Biodegradable plastic mulch has been in improvement for decades.

Plastic mulching is significant in view of the changing technological scenario for boosting crop yields and productivity in minimum production expenditure. It is actually a boon to dry land farmers. Multiple effects contribute towards the enhance in the yield up to 50-60% under rain-fed condition. Hence, authorities should take all possible steps to produce the plastic sheet in a mass scale and make it available to the farmers at a reasonable price. This will allow densely populated lower middle class countries to become self-sufficient in food.

KHADIZA TUL SINTHIA
BANGABANDHU SHEIKH MUJIBUR RAHMAN AGRICULTURAL UNIVERSITY

8 Miscellany



Md. Tofazzal Islam,

Fellow, Bangladesh Academy of Sciences

Fellow of the Fulbright, Commonwealth, JSPS and Alexander von Humboldt foundation Professor and
Director, Institute of Biotechnology and Genetic Engineering (IBGE),
Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur-1706, BANGLADESH

A Great Scientist

Dr. Md. Tofazzal Islam is a Professor and founder Director of the Institute of Biotechnology and Genetic Engineering (IBGE) of Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Gazipur. He obtained B Sc Ag (Hon) and M Sc (Ag) in Agricultural Chemistry from Bangladesh Agricultural University (BAU), securing First position in the First Class in both the cases in order of merit. He went to Hokkaido University, Japan in 1997 with Japanese Government Scholarship (Monbusho), where he obtained his MS (1999) and Ph D (2002) in Applied Bioscience under the supervision of Professor Dr. Satoshi Tahara. He did Postdoctoral research at Hokkaido University (Japan), University of Goettingen (Germany), University of Nottingham (UK) and West Virginia University (USA) under the JSPS, Alexander von Humboldt, Commonwealth and Fulbright fellowships, respectively.

Dr. Islam is the pioneer of fearsome wheat blast disease research in Bangladesh. His team is dedicated to mitigate wheat blast disease in Bangladesh by using frontier technologies. He published more than 250 research articles in the national and international peer-reviewed journals. His total Google Scholar citations over 3300, h-index: 30, and i10-index: 84 and research gate score: 42.10. He achieved many prizes and medals for his outstanding academic and research accomplishments including the Islamic Development Bank Innovation Award 2018, Bangladesh Academy of Sciences Gold Medal (2011) as a senior scientist in biological sciences, Vocational Excellence Award 2017 from the Rotary Club of Uttara (RI Dist 3281), Bangladesh, Food & Agriculture Award 2011 from Oxfam & CSRL, the University Grants Commission (UGC) Award in 2004 and 2008, the Best Young Scientist Award 2003 from the Japan Society for Bioscience, Biotechnology and Agrochemistry, Chancellor's Prize in 1995 and a Gold Medal in 2003 from BAU, UGC Merit Award in 1990, and Prof. A. Karim Memorial Award in 1992.

He supervised a good number of MS and Ph D students, and actively involved in many professional networks/organizations at home and abroad. Over the years, he has established research collaborations with many scientists in USA, UK, Germany, Japan, China, Switzerland, France, Netherlands, Korea and Canada.

In the first issue of Krishi Kolpa, we present to you the interview with this great scientist Dr. Md. Tofazzal Islam

1. Would you please tell us something about your childhood? What did you want to be in your childhood?

I was born in 1966 in the village name Shashai of Bijoynagar Upazila in Brahmanbaria district. When I was ready to go to primary school, at that time liberation war was started. I received my primary education at Shashai Primary School. Then I completed my secondary education from Satbarga High School 4.5 km far from my village. I was a very good student from grade 2 to grade 10. I always stood first in my class. My education and life during primary and secondary education are big memories in my life. I enjoyed spending a lot of time with my parents to help them in their farming activities. So from my childhood, I deeply connected to agriculture or crop production. Our village is situated on the bank of the river Sinai which is connected to the river Titas. I have exciting memories of catching fishes in that river and nearby beels.

2. How was your school life? Please tell us a memorable incident of your student life that had a great impact on you?

When I was a student of Satbarga High School, I was fortunate to meet with a great teacher, Debabrata Chakraborty. He was known as 'ok sir'. In fact, he was a critical thinker and a brilliant teacher. He trained students to use their creativities for solving any mathematical problem. He encourages understanding rather than memorizing the solution of a mathematical problem. His training greatly impacted in my whole educational career.

3. What was your favorite subject in academic life and why? From where did you get the interest of agriculture?

I loved all the subjects when I started my formal education in the primary school. But when I was in class 8, I realized that I have a strong fascination for mathematics especially, algebra and geometry. Sometimes, I spent the whole night for solving a problem. And it is due to the guidance and inspiration by my favorite teacher Debabrata Chakraborty. Another subject that attracted me was chemistry. And I still love chemistry very much. My interest in agriculture is deeply rooted into my childhood when I was working in the crop field with my parents. I truly enjoyed my working with my parents in the crop field.

4. When did you want to take up teaching as a profession? Nowadays we see most of the people who go to abroad for higher study, want to settle there. But you did not do that. Why?

When I was a student, I had no specific dream to become a doctor or engineer. I got a chance at University of Dhaka for studying Chemistry. At that time, admission test at Bangladesh Agricultural University (BAU) was always late. When I was attending class in the Department of Chemistry, one of my best friends, Sanaul Haque Swapon asked me to appear admission test of BAU. I went there and amazed to see the beauty of BAU campus. Fortunately, I got chance to study agriculture at BAU. In the first-year final examination, I stood first in the first class, which really changed my next educational life.

When I completed my undergraduate education securing first position in the first class, I was almost confident that I could be a teacher of BAU. But I failed. I stayed two years and faced interviews for a lecturer position for four times. But I was rejected every time due to political reason. Later, I started my career as a faculty member of Bangladesh Open University in 1994. In my career, fortunately I enjoyed all the top scholarship and fellowships (Monbukagakusho scholarship, and JSPS, Humboldt, Commonwealth and Fulbright fellowships) in the world. I stayed for more than 10 years in Japan, Germany, UK and USA, and tried to understand the secrets of their development. Every moment, I thought when I would go back to home, I would try my level best to do science and train our young scholars. I am ever-indebted to and love my motherland. Therefore, I never ever thought to settle in any developed country. I dreamt to do globally competitive research in my motherland and dedicate myself for training next-generation researchers.

5.Please tell us something about your current discovery, previous research projects, and publications?

Currently, I am working on two major topics of research. One is to mitigate fearsome wheat blast disease using advanced biotechnological approaches and the other is to discover novel plant probiotics useful for sustainable crop production. We first discovered the genetic identity and origin of wheat blast in Bangladesh using field pathogenomics and open data sharing approaches. We discovered some wheat and rice endophytes that effectively biocontrol wheat blast. Recently, we discovered a new convenient diagnostic protocol for precisely detect wheat blast by analysing hundreds of genome sequences of blast fungus. Currently, we are using CRISPR-Cas gene editing, nuclear technologies, marker-based gene introgression and nanotechnology for the mitigation of wheat blast. Over the years, we discovered more than 600 bacteria from native environment as endophytes of different crops and they are deposited in our biobank. Application of some of them was found to reduce 50% of chemical fertilizers requirements in rice without compromising yield. Reduction of 50% chemical fertilizers application in rice by probiotic bacteria would hugely impact on our economy and improve soil health. Over the years, I fortunately discovered more than 50 new bioactive compounds from plants and microorganisms from marine and terrestrial environments. Over the years, I published more than 250 research articles in the high-rank international journals. I established the Institute of Biotechnology and Genetic Engineering (IBGE) at BSMRAU with state-of-art lab facilities. My research team publishes 25-30 research articles every year.

6. What are the differences in research system between Bangladesh and developed countries (Asia vs Europe vs America)?

There are lots of differences in system, culture and standard of research between Bangladesh and any developed country. A major one is the cultural difference. Our ecosystem is not suitable for doing globally competitive fundamental research. You know Bangladesh is a developing country. We have lots of population and hence lots of challenges. We expect immediate solution to everything. Another very big problem is the lack of a recognition system for fundamental research. Our policymakers should realize this issue.

Most of our faculty members took training from abroad. They know how to do globally competitive research. In the knowledge-based economy, all the technologies are developed by using new knowledge generated by basic research. If we have no new knowledge, we cannot own any technology. Then we cannot meet up our new challenges. As a result, we must depend on technologies of other countries. Using technology of other countries, we cannot be economically powerful. Then how can we achieve the target of becoming a developed nation by the year 2041? We have to do research on nationally priority areas and generate own knowledge to develop technolgies. Our students are globally competitive and faculty members/researchers are trained in the developed countries. Therefore, we have high potentials for improving our situation. We need to develop a sound ecosystem for globally competitive research.

7. Bioinformatics is a very popular field today. How the study from agricultural background can solely involve with it?

Knowledge in bioinformatics is necessary for any student in the field of biology. But unfortunately in our agricultural universities, this subject is missing in the curriculum of undergraduate sprograms. I think we should introduce and include this course not only in agriculture but also in the undergraduate curricula of any branch of biology like botany, zoology, microbiology, biochemistry. If we search international journals, you can find that our young scholars are really good at bioinformatics as they published a good number of papers. If we can offer them proper training on bioinformatics, I think they could uphold the image of Bangladesh in this post-genomic era. Besides, training on bioinformatics also helps our young generation to prepare for a good career in future.

8. Please tell us about the mining Bangladesh Bio gold project and Bacterial genome bank?

Mining Bangladesh biogold is a dream project for me. Because as a proud citizen of Bangladesh, I believe that Bangladesh is unique in many aspects. I strongly believe that Bangladesh is very rich in biogold. I added the term ‘gold’ because gold is a very precious metal. Beneficial microorganism in our unique delta and the Bay of Bengal are the biogold. Almost 99.9% of microorganisms available in our environment are beneficial for us. We are very rich and our microorganisms are unique. Exploration of these biogold and apply them in agriculture and industry is an exciting area of research in Bangladesh. We also call these beneficial microorganism as probiotics. Those microorganisms can be used as a biopesticide, biostimulant and biofertilizers. By using those microorganisms, we believe that we can make a revolution in agriculture as they are renewable natural resource. You can use them for a long time and decrease production costs in agriculture. The second big problem in our country is the environmental degradation. If you use chemical fertilizer and pesticides, you destroy the environment. But the probiotic microorganisms are helpful for improving soil health and crop productivity. Indeed, our Bay of Bengal is an unexplored reserver of industrially precious microorganisms. Therefore, we started to continue our research from land to the Bay of Bengal and discover the new microorganisms that have high potential to use in agriculture, mitigation of environmental pollution and development of new industry.

9. Blast has severely attacked Bangladesh in the year 2016-17. Being a pioneer of blast research, how can we use genome editing technology to make resistant variety in Bangladesh?

Wheat blast is a major threat to our wheat production and food security. It was introduced to Bangladesh in 2016 likely through import of wheat grain from South America. In February 2016, the first wheat blast epidemics in eight districts of Bangladesh devastated 15,000 ha of our wheat crops. Most of the affected crop fields in Bangladesh were burnt to reduce the fungus. Wheat blast has been in some South American countries since 1985. First I came to know about the outbreak of wheat blast in Bangladesh from Dr. Sophien Kamoun, who shared a news report published in the Daily Star. Immediately after his post in the Facebook, I discussed with him and decided to conduct collaborative research on determination of the origin of wheat blast in Bangladesh. We used field pathogenomics, open data sharing and open science approaches and engaged scientists from four continents to discover the origin of this disease within weeks. Our research article on Emergence of wheat blast in Bangladesh was caused by a lineage of South American Magnaporthe oryzae was published in a flagship journal BMC Biology by 31 researchers within 6 months of starting our research. We received overwhelming appreciations from the then Minister for Agriculture Matia Chowdhury and global scientific community. Over last four years, we made considerable progress in wheat blast research including (i) discovery of a convenient diagnostic method for detection of wheat blast; (ii) biocontrol of wheat last by Bacillus spp. and new secondary metabolites from marine bacteria; (iii) discovery of potential blast control nanomaterials; (iv) new mutant lines resistant to wheat blast; and (v) development of genome edited wheat blast CRISPR-Cas method. We expect that our discoveries would lead mitigation of the worrisome wheat blast in Bangladesh and beyond.

10. Please tell us about the scope and facilities of natural product discovery in Bangladesh?

For Natural product discovery, most of our chemistry labs have no NMR and other instruments for spectroscopic analysis for structure elucidation. Bangladesh has enormous potential to discover new natural products from our microorganisms in the terrestrial ecosystem as well as from the marine ecosystems. If we have essential facilities for chromatographic and spectroscopic analyses, our chemists can discover industrially important natural products from the native organisms. I am a life member of Bangladesh Chemical Society. I know we have many powerful chemists in our country but due to the limitation of facilities, the discovery of natural products from Bangladesh is still limited.

11. What do you think about the collaboration between industry and academia? Where the agricultural sector should be improved in Bangladesh?

I think Bangladesh needs to encourage and formulate or deregulate the policies for promoting industry-academia partnership. Our agriculture is not now a subsistence agriculture. Farmers are not producing crop just for their livelihood. Now our farmers consider profit. Farmers even moves to the cultivation of flowers if it is prifitable. We need more food for the ever-increasing population. We need safe and nutritious food for ensuring targeted food and nutritional security. We badly need agroprocessing for value addition and making agriculture profitable. We also need to expand our storage capacity. We need mechanization in our agriculture.

I believe the government is now in the right way and focusing on these approaches. We need more focus and more policy implications for processing, commercialization and mechanization in agriculture to make agriculture profitable. We need larger application of biotechnology and genetic engineering for addressing new challenges due to global climate change.

12. How the internet of things (IOT) and agriculture can have revolutionized the next-generation agricultural sector?

Science is evolving very fast. As a result, our life and activity are changing dramatically. Technology is generated in biotechnology and information technology. The Internet of things has already been started to use in several countries in agricultural research. Currently, we are using computer internet. That means it creates human-computer interaction. But the internet of things creates a computer to computer interaction. As a result, artificial intelligence can decide itself. We are mostly dependent on agriculture. Therefore, the internet of things obviously would change in our agricultural practices. Climate change considered one of the important threats to our agriculture. By using different sensing mechanisms, we can record and analyze a huge amount of climatic data and can decide about irrigation time, plant protection, and harvesting. And I am sure our government should focus on this area. If our young generation gets the right skill and right knowledge, they can face and adapt themselves to make the industrial revolution in Bangladesh. To prepare young generation for the fourth industrial revolution, we need to update curricula of our universities with IOT, bioinformatics, nanotechnology and other frontier sciences.

13. Do we have enough facilities to produce safe food? What are the current challenges of GM food production in Bangladesh?

Bangladesh is nearly self-sufficient in food production especially cerials like rice, and other vegetable production. But it is a really big concern about having the safe food. In any agricultural productivity, Bangladesh is almost at the top in the world. Application of research knowledge in agriculture in Bangladesh is phenomenal. However, we need some advanced technologies for the safe food production. We need larger application of biotechnology in agriculture. We have introduced insect-resistant genetically engineered bt-brinjal. Genetically engineered bolden rice, bt cotton and late blight resistant potato varieties are in the pipeline for release to the farmers field. I think Bangladesh needs to introduce new technology such as genome-edited crop for replacing the use of hazardous chemicals in agriculture that we are using. Larger application of *CRISPR-Cas* genome editing would lead a second green revolution in Bangladesh. Bangladesh also needs to use and promote probiotic technologies that are safe and sustainable for our country.

14. How COVID-19 will affect sustainable development goals (SDG)? What is your suggestion to way out of it?

Like other countries, Bangladesh's economy is also affected by COVID-19. The big problem is that we do not know when it will be ended. In reality, the flood, Amphan, and COVID-19 have been affecting our agriculture. It would be a big challenge to maintain our food security. The initial approaches would be; how better we can adapt to this COVID-19. In our health sector, we are a a little bit frustrated. We have a limited capacity and the utilization of the resources seems poor. In fact, no government was prepared to face the COVID-19. We need to use our limited human and physical resources in the best way to tackle COVID-19.

13. Do we have enough facilities to produce safe food? What are the current challenges of GM food production in Bangladesh?

Bangladesh is self-sufficient in food production especially serial, rice, and other vegetable production but it is a really big concern about having safe food. In any agricultural sector, Bangladesh is almost at the top in the world. So we are very rich at least in agriculture. We need some alternate technology for our safe food production. This is why we need biotechnology. We also introduce insect-resistant cotton. I think Bangladesh needs to introduce new technology like genome-edited crop for replacing hazardous chemicals that we are using. Bangladesh needs to use and promote probiotic technologies that are safe and sustainable for our country.

15. What is your dream with IBGE? Where do you want to see Bangladesh after 2030?

I am a very optimistic man and my dream is my capital. I started my journey at BMSARU in 2010 with no laboratory facility. Failure always gives me experience. This experience helps me to get success. When I applied to the higher education quality enhancement project (HEQEP) for a big fund, I had practically no laboratory. However, in that project proposal in 2011, I mentioned that if they grant funding for me, my department will be upgraded into an Institute of Biotechnology and Genetic Engineering (IBE). In fact, at that time it was a too big ambition. I got the funding from the HEQEP and eventually my department upgraded to the IBGE in 2019. That means I incubated that dream for eight years and finally the dream comes true. I am trying to make a globally standard research environment in IBGE and have been trying to create an evidence for the other researchers for globally competitive basic and applied research in the field of biotechnology and genetic engineering. I am lucky to have some crazy motivated peoples in my team who genuinely love doing science. My dream is to see a big change in in research culture in Bangladesh.

16. How students will have the opportunity to work with you? What do you want to tell our young generation?

In my whole life, I spent a lot of time interacting with young minds. In our laboratory, we host students from different universities. Our laboratory is opened for any researcher who have innovative idea or wish to learn how to love science. Any young student/researcher who has a dream to do ground-breaking research and want to collaborate with us, we welcome them. We need a good network of researchers. We believe that collaboration is the key for any ground-breaking research. We should utilize our limited resources in a best way. Our young scholars should not only explore opportunities in Bangladesh, they should also explore global opportunities. If you have determination, you must find your way. Another advice is that, be ambitious and be active. If you have a good ambition to become a great researcher or become a good man or become a competent person for the society, I am sure you would find the right opportunity. Be resilient and never to be frustrated.

The interview was recorded by
Md. Tangimul Islam (National Director),
S. M. Kamran Ashraf (Vice President of Communication & Membership) &
Saleha Khatun ripta (Vice President of Finance).

Farmer, the real hero

A farmer is great of all
Doesn't hesitate in farming at all,
Devoted to agriculture
Works to rearrange life structure.

Honorable farmers of a village
Future hope of global stage,
Through the activities of agriculture
They will be turned into best example of mankind.

If agricultural is going well
The earth will be kept well,
May farmers live long
To make a prosperous nation.

Anamika Deb
Faculty of Biotechnology and Genetic Engineering
Sylhet Agricultural University

A Giant/Largest Mango Tree in Bangladesh

It is the largest mango tree in Bangladesh.Besides,probably this is the world's biggest mango tree.This giant tree situated in Horinmari union of Baliadangi Upazila in Thakurgaon district.It prevalence across 1 acre of land which has been already created with the potential of tourism.Many people visit this place everyday.Local people scolded the concerned government department to create necessary infrastructure to preserve this heritage.People also says that one day it will be named the largest mango tree in Asia.And it will be placed the Guinness World Book .So,it's our responsibility to take care of this place.Try to visit this place.

Satyajit Paul
Agro Product Processing Technology
Jashore University of Science and Technology

Some Interesting Facts

- There are more micro-organisms in one teaspoon of soil than there are people on earth.
- Trees are the longest living organisms on earth and never die of old age.
- An average tree is made up of 99% dead cells, only around 1% of it is alive at any time.
- A tree can absorb 48 pounds of co2 each year.
- Fruit change colour as they ripen because while ripening chlorophyll breaks down and is replaced by orange carotenoids and red anthocyanins.
- As fruit ripens, they convert starches to sugar due to the presence of ethylene gas, which makes them sweeter.
- Avocados are fruit but contain no sugar.
- Strawberries are the only fruit which grows seeds on the outside.
- Apples are more proficient at waking you up in the morning than coffee.
- The sticker on fruits are edible.
- Humans share 50% of their DNA with bananas.
- Peanuts are one ingredient in dynamite.
- Bananas don’t grow towards the ground like other fruits. They start to turn towards sun in order to retrieve sunlight.
- The fruit grows against gravity and becomes curved in shape.

- World's most expensive spice is saffron and fruit is yubari melon.
- Milk have a sugar named lactose. So, it tastes sweet. When it converted into curd, lactobacillus bacteria converts lactose to lactic acid. So, it tastes sour.
- In night condition, white colour and fragrant will attract pollinators. That's why most of the night blooming flowers are white in colour and have mild fragrant.
- Due to the circadian rhythm, sunflowers always face the sun.
- Due to a rapid loss of turgor by cells of leaflets, Touch-Me-Not (Mimosa pudica) leaves close when touched.
- The first flower to grow in space is zinnia.
- Many orchids don't need soil to grow, they can get all the nutrients from the air instead.
- Snake plant, spider plant and some other plants can uptake co2 during night because of their ability to perform a type of photosynthesis called Crassulacean Acid Metabolism (CAM).
- Honey bees perform 80% of pollination worldwide.
- Honey bees are the only insects that make food that humans eat.
- Taro leaves, lotus leaves never get wet because of numerous tiny waxy spikes of its surface.
- When you cut onions, they produce the chemical irritant known as syn-propanethial-S-oxide. It stimulates the eyes' lachrymal glands so they release tears.

Khadiza Tul Sinthia
Bangabandhu Sheikh Mujibur Rahman Agricultural University

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"Let there not be an inch of land left without farming

-Prime Minister Sheikh Hasina