



Advanced Seed Research & Biotech Centre

ACI Agribusiness, ACI Limited

PREFACE

The ASRBC is working based on its vision on the concept to develop plant varieties for stress conditions producing higher yields per unit of area, time, investment and quality using both its own and collaborative R&D programmes with experts of Universities and institutes of home and abroad. The net result of this within two years is Public-Private-Partnership with BSMRAU, BAU, HDSTU, PSTU, RDA, BARI, SAU, DU, RU and the Gothenberg and Lund universities of Sweden, Gifu University of Japan. The ACI-ASRBC has already established strong linkage with IRRI through both Hybrid Rice Development Consortium (HRDC) and the USAID.

The management of the Agribusinesses and the ASRBC with strong support of the ACI Ltd. has been growing continuously to address the agricultural problems of Bangladesh and elsewhere of similar agro-ecological conditions.

Prof. Lutfur Rahman

Advisor, ACI Agribusiness
& Head of ASRBC



The ASRBC Works for

Established in 2012 by the ACI Limited, the Advanced Seed Research and Biotech Centre (ASRBC) aims at developing plant varieties of High Yields with better quality products for sustainable production under stress conditions of the country. The ASRBC has been working on Rice, Wheat, Rapeseed, Potato, Tomato, Brinjal, Papaya and the Disease pathogen of *Fusarium* spp. and *Phytophthora* spp. collection characterization and conservation for use in resistance breeding of the major crops and crops working with. The ASRBC has also a strong program on special trait based PGR collection, phenotypical and molecular characterization and conservation. Facilities for biochemical assay and seed health test have also been developed recently.

The molecular lab developed so far has been working with crops using the TILLING technique and that of Hybrid breeding along with use of both Conventional and Participatory breeding so that the varieties developed can get adopted by the farming community easily.

Mission

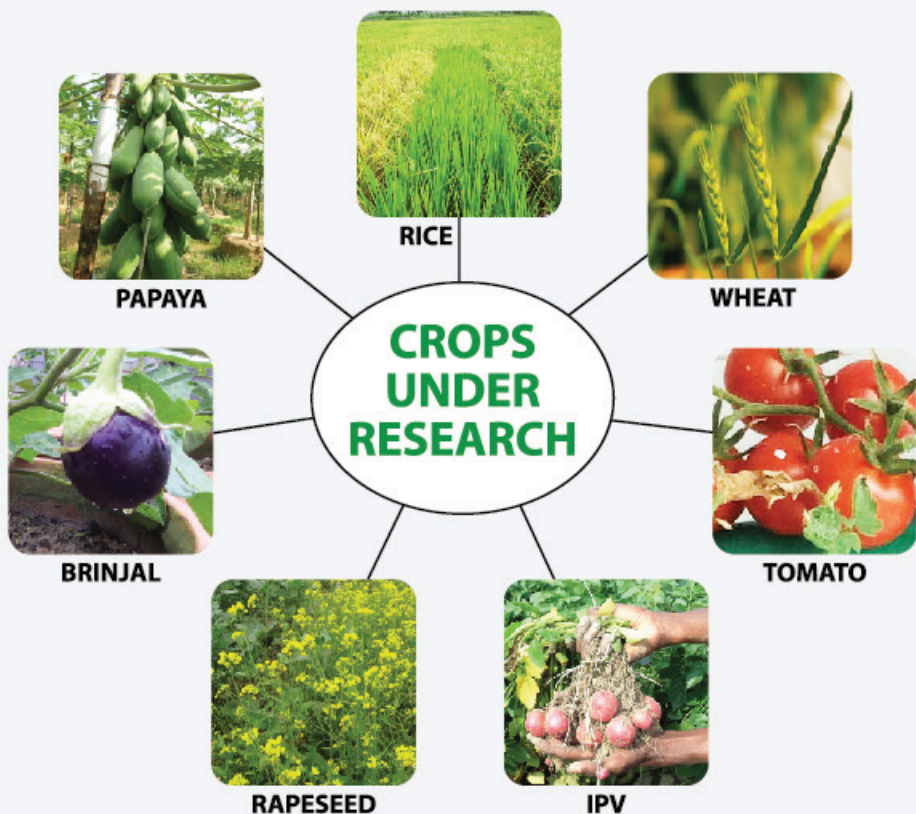
Development of Plant Varieties using Molecular, Conventional & Participatory Plant Breeding.

Vision

Better quality seeds of improved varieties with biotic and abiotic stress tolerance.

Objectives

- Use molecular plant breeding for OP & Hybrids
- Collect & conserve PGR of important traits
- Establish & use Biotech & GE lab. facilities
- Establish collaborative researches with NARS, International Institutes & Universities.



In Bangladesh there is little scope to expand the cultivation area as the amount of population is increasing day by day. To fulfill the high demand of food, esp. nutritional food security for the increased population, the ASRBC is developing crop varieties and targeting Trait-Based gene sourcing & Pyramiding for high yields and quality products having shorter duration but are highly environmental & investment friendly. ASRBC's development of nationally prioritized crops has been encouraged by the government of the country.



EXISTING RESEARCHES

It is expected that by 2040 the population of Bangladesh will exceed 195 million. With the growing need of food, development of crops is necessary. The agriculture sector requires more advanced level crops with maximum yield from minimum input and the government is putting in more effort for the development of this sector. To cope up with the growing need of food, ASRBC is working on many different fields such as the development of varieties of crops, disease resistant ability, saline and drought tolerance, high yield and many more.

The existing researches at the ASRBC are:

- Development of high yielding hybrids having saline & drought tolerance along with enriched nutrition
- Creation of saline & drought tolerant HYVs of wheat
- Improvement of Indigenous Potato Varieties (IPV) through positive selection and quality seed production
- Late Blight Resistant Modern Potato Varieties
- Pest & Disease resistant summer and winter varieties of Tomato
- Insect resistant varieties of Brinjal
- Development of high yielding hybrid varieties of Rapeseed
- Genetic Fingerprinting and Marker Assisted Selection
- Plant Genetic Resources- collection, characterization & conservation of selected germplasm

COLLABORATION FOR SUSTAINABLE NUTRITION RICH FOOD SECURITY

The ASRBC has been collaborating with different institutions and universities at national and international levels. Presently, through Memorandum of Understandings with the collaborative institutes the ASRBC is developing a number important agricultural crops.



RICE

Bangabandhu Sheikh Mujibur Rahman Agriculture University

High yielding, stress tolerant Rice development is being developed under the supervision of Professor Dr. M. A. Khaleque Mian who is a professor in the Department of Genetics and Plant Breeding.

International Rice Research Institute (IRRI)

The IRRI is collaborating by providing rice germplasm suitable to address the problems prevalent in the country for field trials.

University of Dhaka

Professor Zeba Islam Seraj is working with ASRBC for the development of saline tolerant Rice.

University of Rajshahi

Prof Aminul Hoque, Faculty of Agriculture is supervising field trials of rice.



WHEAT

Hajee Mohammad Danesh Science & Technology University

ASRBC is experimenting on Wheat under the supervision of Dr. Md. Hasanuzzaman, the chairman of the Department of Genetics & Planet Breeding.

Lund University, Sweden

ASRBC has an undergoing research project with Professor Olof Olsson for the development of wheat seed.

Gothenburg University, Sweden

Dr. Henrik Aronsson is also collaborating along with Prof. Olof Olsson in the Wheat research project.



MUSTARD

Bangladesh Agriculture Research Institute

ASRBC has a collaborative research of Mustard with Dr. Mubarak Ali who is working in Oilseed Research Centre at BARI.

University of Dhaka

Professor Rakha Hari Sarker is working with ASRBC for the development of new Mustard varieties.



TOMATO & BRINJAL

Sher-e-Bangla Agriculture University

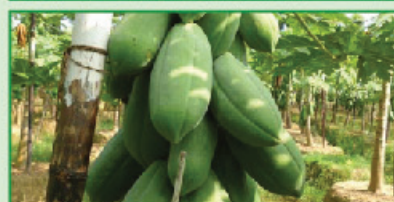
ASRBC is carrying out research of Tomato and Brinjal variety development with Dr. AFM Jamal Uddin who is the Chairman of the Department of Horticulture.



INDIGENOUS POTATO VARIETY

Rural Development Academy (RDA)

Land has been leased from the RDA and 5 varieties of Indigenous Potato Varieties are being developed under the supervision of Dr. Abdus Siddique.



PAPAYA

Bangabandhu Sheikh Mujibur Rahman Agriculture University

New varieties of Papaya are being developed through research on collaboration with Professor Dr. M. A. Khaleque Mian and Dr. Ivy Rahman.



FIELD RESEARCH, KOLAPARA & CROP MUSEUM

Bangladesh Jute Research Institute (BJRI)

Land has been acquired for testing saline resistant, early maturing, submergence tolerant & high yielding rice varieties in the Southern region of the Country

University of Rajshahi

A Crop Museum is maintained with the help of Dr. Tanzima Yeasmin, Chairperson of the Institute of Biological Sciences.



BIOCONTROL

GIFU University, Japan

Through an existing MoU, a collaborative program regarding crop pathogen biocontrol will begin shortly.



Molecular Breeding: Paving the Path of Agriculture

FACILITIES

ASRBC researchers use a combination of science and cutting edge technology to develop innovative explications which help the agricultural development. For a wide range research many extensive facilities are available at R&D Centre. We believe in proper research with accurate result.



Plant Tissue Culture facilities available with plant stability chamber to develop disease free plantlets of various vegetables and flowers.



24 hours fully automated greenhouse with temperature & moisture control, allowing research on winter and exotic crops all year round. Such facility is also unique in Bangladesh context.



A fully netted rooftop with an enclosed double door nethouse enables pest free research of a variety of crops. Integrated facilities such as these, simulating field conditions are the first of its kind in Bangladesh.



Enriched with Molecular laboratory allows Genetic Fingerprinting and Marker Assisted Selection allows characterization of crops at the molecular level and detection of genes encoding desired traits for further R&D.

The facilities of ASRBC provide the scientists a larger space to come out with successes. it also helps them to do the research in all the fields of plant varieties. We understand that the success of our R&D activities relies on our people.



A Seed Health Test laboratory in the ASRBC is able to determine the quality of seeds before production and marketing with assistance from the Pathogen Isolation lab.



Facilities to carry out conventional breeding are also available at the ASRBC, since this process compliments the molecular breeding techniques.



The ASRBC laboratories also have facilities for Biochemical Assay, allowing the qualitative traits such as amylose content of rice, starch content of potato, protein content of wheat, etc. to be identified. This is essential for nutritional food security of Bangladesh.



A Pathogen Isolation laboratory at the ASRBC, has the ability to isolate, characterize and conserve the major fungal and bacterial agents causing diseases in cereals as well as vegetables.



Action Research: From Lab to Land

The Advanced Seed Research and Biotech Centre (ASRBC) is committed to take the developed crop varieties from the laboratory to the fields of the beneficiaries. This is done through Participatory Variety Selection in the farmer's fields, demonstrations of homestead gardens and field crops, training, surveys and using the information collected through these techniques for further research.

Through these programs both male and female farmers gain knowledge about appropriate agronomic practices, cropping patterns and different varieties of suitable good quality crop seeds. Lead farmers are identified from the program become small entrepreneurs for better market linkage. Local dealers are trained on the same as above and encouraged to stock the appropriate seeds. Surveys are done to identify present situations and problems of the program locations. All the information gathered from these activities is sent back to the ASRBC to carry out further research for the benefit of the agriculture sector of the country.

Scientists of the ASRBC

ASRBC Scientists	Designation
Prof. Dr. Lutfur Rahman	Advisor, ACI Agribusiness and Head of ASRBC
Dr. ASM Nahiyen	Senior Scientist
Adeeba Raihan	Research Specialist
Mir Aszad Ali	Assistant Plant Breeder
Momena Kandaker	Scientist
Md. Atikur Rahman	Scientist
Md. Ariful Islam	Scientist
Md. Jahidul Islam	Research Assistant
Shammana Ahmed	Research Assistant
Anwasha Hossain	Program Scientist
Anisar Rahman	Program Scientist
Eashmat Ara Annay	Program Scientist

Experts Associated with the ASRBC for Crop Development

Dr. Md. Abdus Siddique	Program Advisor
Prof. MA Khaleque Mian	Program Advisor
Dr. AFM Jamal Uddin	Program Advisor
Prof. Md. Hasanuzzaman	Program Advisor
Prof. Rakha Hari Sarker	Program Advisor
Prof. Zeba I Seraj	Program Advisor
Dr. Md. Mobarak Ali	Program Advisor
Prof. Tanzima Yeasmin	Program Advisor
Prof. Md. Aminul Hoque	Program Advisor
Prof. Olof Olsson	Program Advisor
Dr. Henrik Aronsson	Program Advisor
Dr. Matsubara Yoichi	Program Advisor

The ASRBC welcomes Experts in all fields of Agriculture in order to carry out better R&D and bring prosperity to the farmers of the country.



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