



ISAAA
in
2018
ACCOMPLISHMENT REPORT





The International Service for the Acquisition of Agri-biotech Applications (ISAAA) is a not-for-profit international organization that shares the benefits of crop biotechnology to various stakeholders, particularly resource-poor farmers in developing countries, through global sharing of knowledge and support to technology development. ISAAA's global knowledge sharing network and partnerships in the research and development continuum provide a powerful combination of science-based information and appropriate technology to facilitate informed decisions about crop biotechnology acceptance and use. In addition, an array of support services completes the holistic approach to agricultural development and ensures effective implementation and timely delivery of crop biotechnologies. These services include capacity building for policy makers and scientists; regulatory oversight on issues such as biosafety and food safety; impact assessment, and science communication.

2018 YEAR IN REVIEW

The polarized dialogue on GM crops has been going on long before the first genetically modified crop was commercialized in 1996. Though many scientific organizations and several studies have proven that the GM crops in the market are as safe as conventional crops, critics continue to question their possible long-term effects. In 2018, this concern has been addressed by several reports and studies which have shown consistent data that biotech crops are beneficial, especially for long-term use. Scientists from the University of Maryland released forty years of data showing the benefits of GM maize considering various parameters 20 years before and after its commercial release. Results showed that GM maize adoption allowed significant decreases in recommended spraying regimens, pest populations, and overall crop damage not just for maize, but also for other important crops. In Brazil, 20 years of GM adoption led to significant increases in farmers' profits, boosted the economy, and preserved the environment. Furthermore, three studies disproved the controversial GM maize study by Gilles-Éric Séralini which is a staple evidence of

biotech critics in courtrooms to dispute the benefits of GM crops. With these findings, together with the ISAAA report on the continuous biotech crop adoption all over the world, GM crops continue to hold the promise of improving not just agriculture, but also the lives of 17 million farmers who continue to plant them.

Researchers and developers had more breakthroughs from the laboratory to the fields. Studies on GM rice have shown that it can be engineered to neutralize HIV; reduce stomata to be more suited for climate change conditions; and possess weed-killing power borrowed from sorghum. Scientists have also pinpointed the molecule responsible for boosting plant growth with less nitrogen. These breakthroughs, together with many others, open more possibilities to improve life, especially in the developing countries.

Regulations on GM crops in the developing world progressed by several steps in 2018, particularly in Africa. For the first time, Swaziland, Nigeria, and Ethiopia allowed their farmers to get access to biotech cotton. Kenya gave a green light to the National Performance Trials of biotech cotton. The Ugandan Parliament passed the GMO bill. These sound decisions of policy makers in the continent bring up the hope of African farmers that they will soon avail of the benefits of GM crops.

The 2018 winners of the Nobel Prize for Chemistry, Professor Frances Arnold from the United States and Sir Gregory Winter of the United Kingdom boldly proclaimed that fears of GM foods are preventing society from benefiting from the technology. This fear, they said, limits the ability of scientists to develop real solutions to the world's most pressing needs. They also recommended focusing on evidence-based regulations so that GM crops in the pipeline could move forward to the hands of growers and consumers. In the Philippines, this "fear" of adopting Bt eggplant caused the delay in commercialization and has led Filipino farmers to lose billions of profits.

This is where ISAAA finds its place. With our continuous efforts in shaping sound policy and regulations, our aim is to attain responsible deployment and adoption of biotech crops. ISAAA provides various forms of support to enable transfer of appropriate biotechnology applications, at the same time stimulate science-based discussions through effective science communication. This report highlights the efforts of ISAAA in 2018 to bring the benefits of biotechnology to those who need it most and uplift more lives, especially in the developing world.



Message from the Acting Global Coordinator

Dr. Paul S. Teng

We have been reminded in 2018 that the challenges to provide the world with adequate and nutritious food, and sufficient feed and fiber remain as important as before. The issues highlighted by the 2017 Food and Agriculture Organization of the United Nations (FAO) Report titled *The Future of Food and Agriculture* seemed even more daunting in 2018, with the year showing an increase in the global number of hungry and malnourished people after many years of decline. FAO and the International Food Policy Research Institute (IFPRI) convened a meeting on “Accelerating the end of hunger and malnutrition” in November 2018 to highlight the matter, explore innovations to build further momentum and accelerate progress and identify opportunities for scaling up successful actions. Throughout this and many other forums, it has become more obvious that technology, especially biotechnology, has a vital contribution to ensure stability and continuing increases in crop productivity and total food supply.

The ISAAA Brief 53, **Global Status of Commercialized Biotech/GM Crops in 2017**, released in 2018 presented evidence to the effect that over the twenty years of commercial plantings of biotech crops, much monetary value has accrued to over 18 million farmers worldwide. In 2017 alone, the world planted 189.8 million hectares of biotech crops with major agricultural product exporting countries like the U.S.A., Brazil and Argentina showing over 90% adoption of biotech crops by their farmers. It is no coincidence that most of the world’s supply of corn and soybeans, two ingredients of importance as animal feed, come from these countries. Brief 53 also reported on the important role that biotech crops play in reducing CO2 emissions and reducing the environmental impact of pesticides. With the attention to climate change in 2017 and 2018, the former benefit is attaining special importance. Added to the above is the continuing unblemished record of food safety with biotech crop products.

Yet there remain detracting voices which spur fear among those responsible for decision making in regulatory circles and in the food supply chain.

ISAAA and its immediate network partners in the Biotechnology Information Centers remains one of the staunchest and most able among organizations

to conduct awareness building, communication, and other outreach activities for stakeholders, especially in those regions where consumers and farmers stand to benefit most from access to biotechnology, i.e. a large part of developing countries in Asia and Africa. The task has become even more important now with the advent of products from newer biotechnology tools which have huge potential to help address the problems arising from climate change effects on crop growth and productivity.

ISAAA has been effective through its various channels of communicating to different stakeholder groups and decision makers. The release of the ISAAA Brief and the resulting amplification by third parties has extended positive news to millions of readers. The weekly *Crop Biotech Update* has kept informed stakeholders abreast with the latest developments in research and applications and has also been amplified further at the country level. Social media instruments have further expanded the reach while mass media outreach activities have netted extended coverage of biotechnology successes. The ISAAA web portal remains today the “go to” source for reliable information on many aspects of biotechnology.

For ISAAA to continue being effective to meet its mission of bringing the benefits of biotechnology to farmers worldwide requires that it also continues to mobilize resources and other support from donors and partners. The task of assuring food and nutrition security under changing climate is too important for any momentum to be lost. Going forward, ISAAA is prepared to work with all like-minded groups and individuals to keep this momentum.







Lastly, the year 2018 also marked the passing of a great champion of crop biotechnology --- Dr. Randy Hautea, ISAAA's Global Coordinator – whose unexpected departure left a big void. Nevertheless, this year's annual report is testament to the leadership he has provided for over a decade.



MILESTONES




1 REPORT
 **35,407**
DOWNLOADS

34 MATERIALS
  
  

COUNTRY LAUNCHES

 **9** IN ASIA
6 IN AFRICA

 **304**
NEWS REPORTS

 **3,130**
SOCIAL MEDIA POSTS

REACHING
2.4 BILLION
MEDIA IMPRESSIONS

 **22** LANGUAGES
IN **58** COUNTRIES

CROP BIOTECH UPDATE

23,941



SUBSCRIBERS
WORLDWIDE

873 ARTICLES



20,000x
ON SOCIAL MEDIA

 **6,742** LINKS
FROM OTHER WEBSITES
ACCESSED

1,028,584x

THRU  **RSS**

 **6** NEW PUBLICATIONS
ON AGRI-BIOTECH

 **2** VIDEOS

 **34** UPDATED
MATERIALS

 **>4,000** DOWNLOADS

GM APPROVAL DATABASE

remains on top of Google search results on GM event approvals



IMAGE GALLERY

OVER 100 IMAGES related to agricultural biotechnology made available for public use



SCIENCE AND SHE

campaign empowered women in science; reached **519,421** impressions



20 BIOTECH INFORMATION CENTERS

at the forefront of public engagement on crop biotechnology

REPRESENTATIVES from **14 ASIAN & 20 AFRICAN** countries prepared for UN Biodiversity Conference discussions



POLICY MAKERS & REGULATORS from **17 APEC ECONOMIES** discussed approaches and policies for the safe use of agri-biotech



>150 EXECUTIVE & LEGISLATIVE OFFICIALS FROM PH enlightened on biotech issues through forums



6 STATEMENTS delivered by ISAAA addressing biotech issues at COP14-MOP9

46 REGULATORS & POLICY MAKERS in Myanmar informed on the scientific bases of biotech regulation



SENSITIZATION WORKSHOPS & SEEING-IS BELIEVING TOURS organized for biosafety regulators, farmers, women, youth, and private sector



~200 participants from **15 AFRICAN COUNTRIES** equipped thru science communication workshops



ENGAGEMENTS WITH MEDIA led to publication of science-based articles

AFRICAN MEDIA PRACTITIONERS awarded for exemplary biotech reporting



POLICY MAKERS & GOVERNMENT OFFICIALS FROM KENYA learned from a study tour in India and recommended Bt cotton commercialization in Kenya



**WE FEED THE
WORLD WITH
KNOWLEDGE**



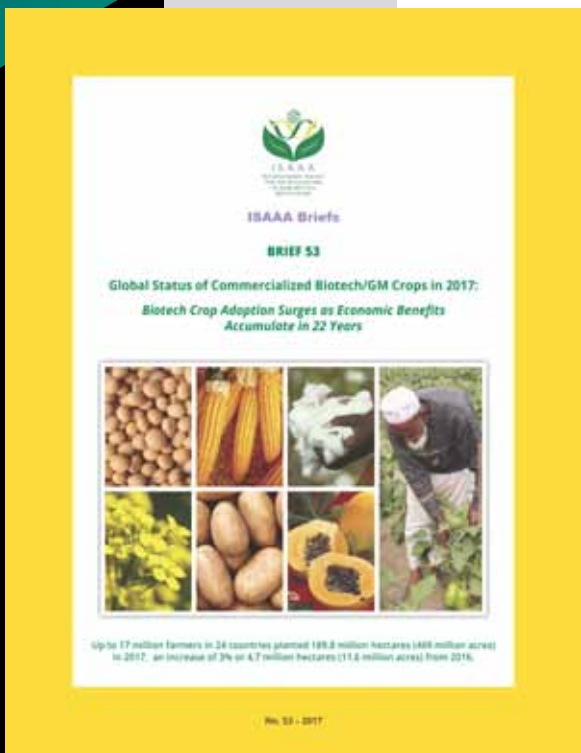
GLOBAL KNOWLEDGE CENTER ON CROP BIOTECHNOLOGY

In 2000, senior policy makers from Southeast Asia, together with international experts, recognized the important role of science and technology in developing countries and recommended the formation of Global Knowledge Center on Crop Biotechnology (KC). With the help of Nobel Peace Laureate, Dr. Norman Borlaug, ISAAA received the seed money from the Philippine president to start the knowledge sharing initiatives. Eighteen years later, KC and its network of Biotechnology Information Centers (BICS) have remained to be at the forefront of biotech communication, helping stakeholders from the developing world to make decisions based on science-based information.



Global Status of Commercialized Biotech/GM Crops: 2017

ISAAA remains to be the number one source of latest information on crop biotech adoption. Its annual report contains the latest data on GM crop adoption, per country, per trait, and per crop, with discussions on the impact of adoption by region. Trends and insights on GM crop event approvals and regulation were also covered.



189.8
MILLION HECTARES
BIOTECH CROPS



 **17** PLANTED BY
MILLION FARMERS
IN 2017

ISAAA Brief 53 Impact Metrics *as of December 31, 2018*

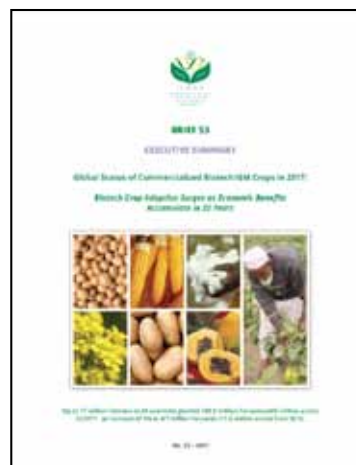
 DOWNLOADS Full Brief 53	15,097	 NEWS Articles	304
 TOTAL DOWNLOADS Full Brief 53 & other materials	31,006	 SOCIAL MEDIA Mentions	3,130
 LINKS to Brief 53 pages	23,547	TOTAL MEDIA IMPRESSIONS** News and Social Media	2.40B

In 2018, the report was launched in 15 countries in Asia and Africa and has reached 2.40 billion media impressions.



Publications and videos

Information materials based on ISAAA Brief 53 were developed and distributed to highlight specific discussions and capture various audiences.



Aside from the Brief 53 derivatives, KC has also published information materials distributed online and in print to expand interest on biotechnology research, development, and commercialization. Most of the ISAAA publications released in previous years were also updated with the most recent data on GM crop adoption.



The ISAAA Biotech/GM Crops Image Gallery is the latest addition to the resources offered by ISAAA for public use. It contains over 100 images related to agricultural biotechnology, which can be used for organizational reports, news articles online and in print, social media posts, and other possible applications. The main goal of the database is to replace fear-mongering images that are widespread in the media, especially online.

New



Updated



ISAAA online

The ISAAA website (www.isaaa.org) stores a wealth of information resources available in multimedia formats. Aside from downloadable resources, it also contains a weekly news update about the latest happenings in crop biotechnology research, development, and commercialization. An easy-to-use database of biotech/GM crop approvals is also available for public use.

www.isaaa.org



Crop Biotech Update

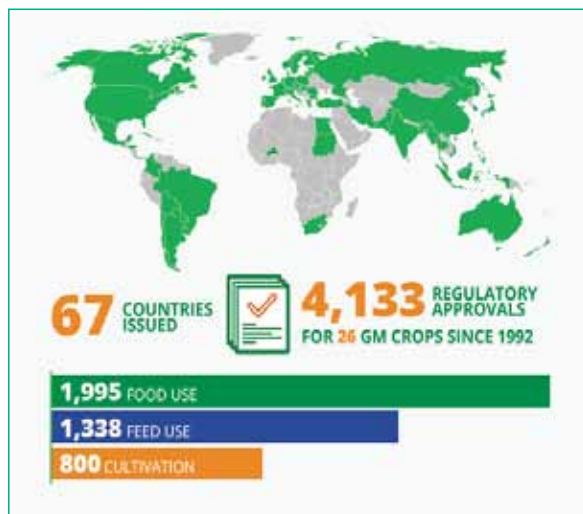
The Crop Biotech Update is the only e-newsletter available for free that tackles modern agri-biotech news and research highlights from all over the world. Founded in 2000, the e-newsletter is distributed every week through various channels such as an electronic mail marketing service, the ISAAA website, RSS, social media, and independent mailing lists of Biotechnology Information Centers. Chosen CBU articles were also translated to different languages and distributed to reach a wider audience. CBU translations include Bahasa Indonesia, Bangla, Chinese, Japanese, Korean, Portuguese, Thai, and Vietnamese.



GM Approval Database

<http://www.isaaa.org/gmapprovaldatabase/>

The ISAAA GM Approval Database is one of the top resources frequently used by online users in searching for GM crop events approval information, as indicated by its top position in the Google Search results. It features the latest approval data together with links to regulatory and biosafety documents released by the approving countries. The database allows advanced search options such as search by event, crop, trait, developer, country or type of approval.



Social Media

The ISAAA blog (isaaablog.blogspot.com) features discussions of biotechnology in conversational and easy-to-grasp manner. Topics covered in 2018 were the trending news on crop biotech in 2017, how Filipino journalists define biotech, and the stories of influential female scientists and science communicators from Asia and Africa.

The ISAAA.org Facebook Page is the number one source of traffic leading to the ISAAA website. Daily posts on crop biotech news and ISAAA publications have reached more audiences online than previous years, through the use of the latest Facebook marketing tools.

ISAAA extends the conversations on biotech through Twitter. The number of followers continues to increase using organic reach. Topics related to government decisions on biotech crops were among the tweets with the highest impressions.

ISAAA has also started to reach the young audiences on Instagram (@isaaa_org). Two months after its launch, the account has gained almost 100 followers with an average of 20 likes per post and almost 1,000 impressions every month.

The month-long Brief 53 social media campaign with official hashtags #GMCrops2017 and #ISAAAReport2017 reached 15.24 million media impressions.





ISAAA and its network of Biotechnology Information Centers launched *Science and She*, a social media campaign to empower women in science. Through various social media platforms, scientists and science communicators tell their stories and aspirations for science and the society with the hope that such women-empowered stories would be instrumental in helping bridge the gap between science and the public. For each week, one female scientist or science communicator serves as the curator of the *Science and She* social media pages on Facebook, Twitter, and Instagram.



Since its launch in February 2018, women from ISAAA, BIC, and partners served as curators of the pages and reached 519,421 impressions on all platforms.



Networking and capacity building

ISAAA staff served as resource persons in various events to help promote discourses on biotechnology among various stakeholders.

The Economics of Biotech Crops Forum, Philippines



Biotech Communication Seminar with Public Information Officers, Philippines

Workshop on Awareness and Capacity Building on Regulations for Agricultural Biotechnology, Myanmar

4th International Conference on Food Safety and Food Security, Cambodia



Biotechnology Exhibit at the House of Representatives, Philippines

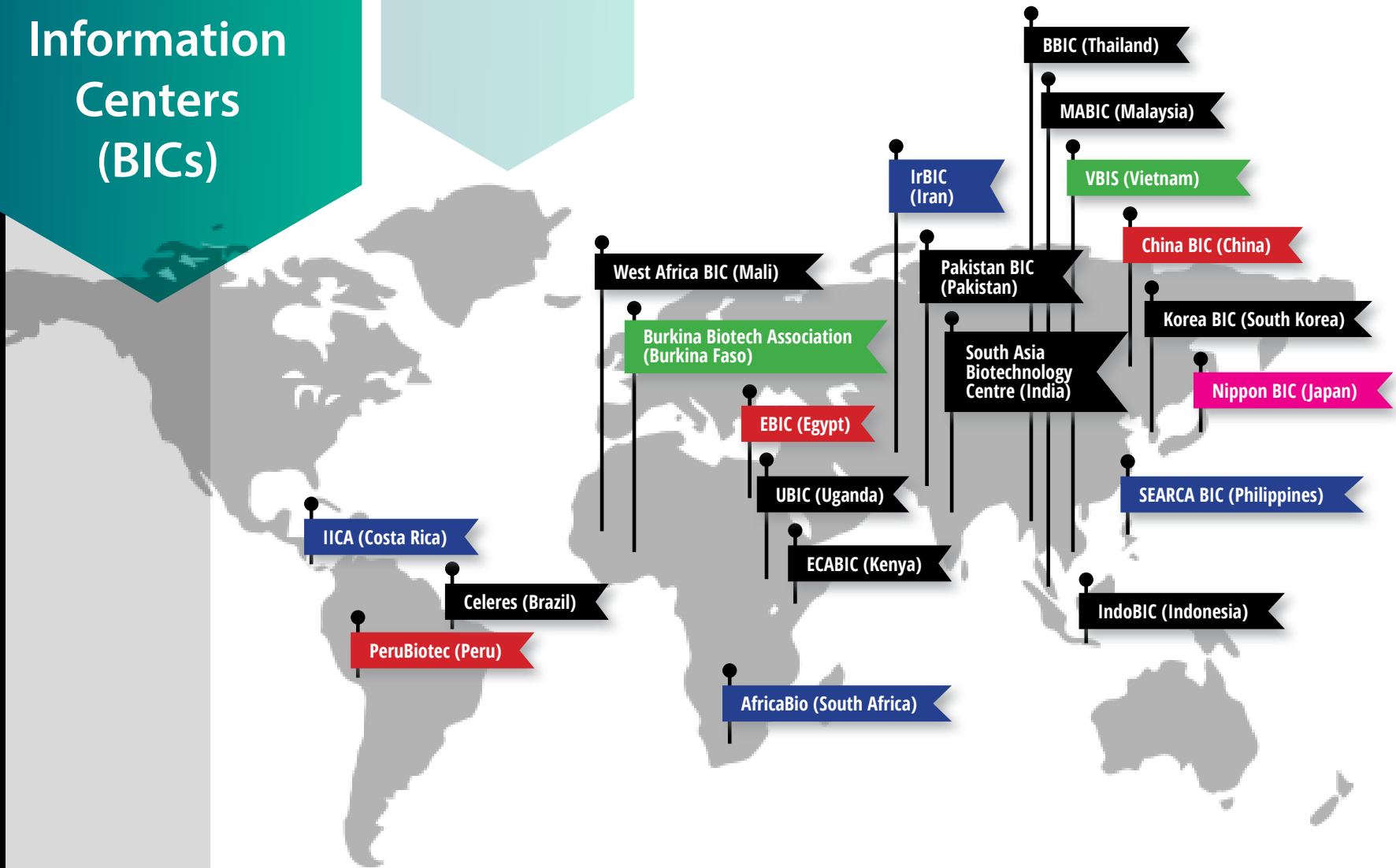


Food Evolution Open Forum Panelist at the House of Representatives, Philippines



USDA Foreign Agricultural Service Outreach Events, Indonesia

Biotech Information Centers (BICs)



Bangladesh

Crop Biotech Update articles significant to Bangladesh were translated to Bangla and published in the ISAAA and Bangladesh Agricultural Research Institute websites. The ISAAA report was presented to over 70 members of the academe and students at the Bangladesh Agricultural University. These efforts increase the awareness of the public about the benefits of Bt brinjal in the country.

Brazil

Selected articles from the Crop Biotech Update were translated to Portuguese to facilitate the transfer of biotech news and information from ISAAA to Portuguese-speaking countries. Conselho de Informações sobre Biotecnologia distributed the Portuguese version of the Brief 53 Press Release to the media to leverage the coverage of the report in the country. These publications ensure continuous dialogue on biotech developments in the country and other Portuguese-speaking countries, influencing the adoption of biotech crops.

India

Bt cotton industry which comprises of Bt trait offered by Monsanto and hybrid cotton genotypes offered by 45 domestic companies faced insurmountable challenge on account of widespread cultivation of illegal Bt/HT cotton hybrids sold by fly-by-night operators and the threat of pink bollworm to cotton cultivation in 2018. South Asia Biotechnology Centre proactively devised and implemented various programs that salvaged US\$1 billion Bt cotton industry from collapse. These programs include a campaign to address widespread cultivation of illegal biotech cotton and a nationwide campaign to increase farmers' awareness on combating pink bollworm.



Indonesia

A roadmap for the development and application of genetically engineered seeds in Indonesia was developed as a collaborative effort of Indonesian Biotechnology Information Centre and the Coordinating Ministry of Economy of Indonesia. The roadmap can serve as a work plan bridge and strategic plan for the involved institutions and stakeholders in Indonesia. It is expected to provide guidance to relevant agencies and stakeholders in developing the production and utilization of domestic seed-produced of genetically engineered products in a sustainable manner to achieve food security and increase farmers' income in Indonesia.

Japan

Nippon Biotechnology Center translated chosen articles from the Crop Biotech Update and were distributed to about 20,000 Japanese readers monthly. NBIC was a member of the drafting committee on the proposal to field test herbicide tolerant sugar beets in Hokkaido, the first of its kind from an Academic Association including universities in Japan. The BIC conducts an annual cartoon contest on biotechnology for high school students



Malaysia

Asian biotech players participated in the first Asian Short Course on Agri-biotechnology, Biosafety Regulations, and Communication, a training platform for Asian policymakers, regulators, scientists and industry players to help them make informed decisions in their countries with the understanding of Convention on Biodiversity (CBD)-related protocols. The short course was organized by the Malaysian Biotechnology Information Centre (MABIC) and partners. MABIC also co-organized Asian preparatory workshops related to CBD and its protocols, which strengthened and added value to Asian delegates' participation at the UN Biodiversity Conference in Egypt.

MABIC developed a science communication module to train scientists and regulators to communicate biotechnology, biosafety, and research to increase public engagement, understanding, and acceptance in these areas.

Along with this effort, MABIC continued to publish the monthly science newspaper, *The Petri Dish*, which has been an effective media to bring credible scientific information to the public and decision makers. Furthermore, MABIC expanded its donor base with US Grains Council, Target Malaria, and Monash University, in addition to CropLife Asia.

Pakistan

In its effort to help fill the gap between scientists and media, Pakistan Biotechnology Information Center (PABIC) in Karachi, together with its partners, organized a seminar on popular science writing. The speakers highlighted the value of explaining science to the public through the media, particularly through online platforms, where misinformation about science is rampant. To address this concern, it was concluded that science promotion through various media forms at the grassroots level is vital to advance science in the country.

PABIC Lahore Chapter introduced a summer internship program for young researchers and students of biotechnology to increase their awareness and exposure to the field. They also organized a two-day workshop on plant biotechnology for food security attended by scientists, regulators, biotech advocates, and representatives from the private industry.



Philippines

SEARCA BIC remains to be a hub of highly accessible and science-based information on agri-biotech to different stakeholders in the Southeast Asian region. For 2018, SEARCA BIC focused on addressing the information needs of policy makers, members of the judiciary, and the general public. Learning events such as public briefings, fora, exhibits, roundtable discussions, and seminars provided a venue for stakeholders to be informed on a range of agri-biotech trends and issues including the science of biotechnology, food and environmental safety of genetically modified crops, biotech products in the pipeline, and the existing biosafety regulatory guidelines in the Philippines, among others. Meanwhile, SEARCA BIC's social media campaign, #KnowTheScience, also continues to gain following and mileage through regular posts on Facebook, Twitter, and Instagram.

Thailand

The Biosafety and Biotechnology Information Center (BBIC) in Thailand translated Crop Biotech Update articles which were distributed to students and other stakeholders through the ISAAA and BBIC websites. BBIC also organized a seminar highlighting the results of the ISAAA report (Brief 53). The initiatives of BBIC promote increase in awareness and stimulate dialogue about biotechnology, which could help in the future adoption of GM crops in the country.

Vietnam

Vietnam Biotech Information Service (ViBIS) organized a workshop on biotechnology in collaboration with Tay Nguyen University and Agricultural Genetics Institute. Aside from discussions on the status and current applications of biotechnology, principles and pointers on science communication were also shared with the 120 participants which include local scientists, policymakers, post-graduate students, and members of the academe. The success of this event opened opportunities for a similar activity to be organized annually in various places in the country and promote knowledge-sharing on biotechnology.

Uganda

UBIC was instrumental in supporting the establishment and operationalization of a positive policy environment and regulatory framework for application of agricultural biotechnology. Through its robust biotechnology and biosafety outreach and communication program as well as partnership mechanisms, UBIC's efforts led to passing of the Genetic Engineering Regulatory Act by the Parliament of Uganda in November 2018. While concerns still remain about the implications of the Act, optimism is high that the established policy environment brings the country closer to a tipping point for access to and application of biotechnology products that will increase household food security and incomes especially for the rural populace in Uganda.

East and Central Africa

AfriCenter's pioneer seeing-is-believing biotech study tours and knowledge products contributed towards commercial approval of Bt cotton in three African countries: Ethiopia, Nigeria, and Swaziland. Kenya and Malawi also successfully planted Bt cotton in national performance trials (NPTs) through these efforts. The Center's intensified communication and outreach programs has seen increased political goodwill in the region, including endorsement of Bt cotton farming by Kenya's

President. These five African countries are expected to join the league of biotech countries by 2020. More details about the initiatives of BICs in Africa can be found on page 31.



A photograph of a person wearing a white turban and a light-colored shirt, using a wooden rake to spread a layer of yellow grain (likely rice) on a paved surface. The person is barefoot. The background shows a green field. The image is framed by a large teal hexagon on the left and a grey hexagon on the bottom right.

WE STRENGTHEN SKILLS IN ASIA

ISAAA *SEAsia*Center supported projects on technology transfer, capacity building on biotech crops regulation, as well as public information and outreach.

Support to technology transfer

In the Philippines, ISAAA provides technical assistance for the commercialization of insect resistant Bt eggplant, which is a public sector biotech crop developed by experts at the University of the Philippines Los Baños Institute of Plant Breeding. Multi-location field trials were completed in 2013 and the developers are currently preparing the requirements for the government's approval for food, feed, processing, and cultivation. Additional research data were collected to complete the information needed for the regulatory dossier and product registration for cultivation, which was a collaborative effort of the developers, ISAAA, and

USAID through Cornell University and Feed the Future Improvement Project-Philippines.

ISAAA and the SEARCA Biotechnology Information Center assist in the dissemination of information about Bt eggplant to equip the different stakeholders with fact-based information prior to the biotech crop's release in the market.



Advancing biotech policy and regulations

One of the major initiatives of ISAAA is to initiate and support discourses on biotech policies and regulations with the goal of advancing the research and development of biotech crops. Such initiatives were conducted together with other like-minded organizations, as well as various government agencies involved in biotech regulations.

Asian Regional Workshop on Current and Emerging Topics under the CBD and its Protocols

14-16 August 2018
Sunway City, Malaysia

A preparatory workshop for the UN Biodiversity Conference 2018 (COP-MOP9) was organized in the Asian region to equip the participants with knowledge on the topics and key issues to be discussed in the conference. The topics discussed include national biotechnology policies, risk communication, and national biosafety regulations in relation to international agreements such as the Convention on Biological Diversity, the Cartagena Protocol on Biosafety, the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress, and the Nagoya Protocol on Access and Benefit Sharing. Current and emerging topics on the agenda of the conference such as synthetic biology, genome editing, and gene drives were also covered.

The workshop was a joint effort of ISAAA and the Malaysian Biotechnology Information Centre, in cooperation with Monash University Malaysia and its Global Asia in the 21st Century platform, and the Public Research & Regulation Initiative. A total of 53 participants from 14 Asian countries joined the workshop.



APEC High Level Policy Dialogue on Agricultural Biotechnology

1-3 August 2018
Brisbane, Australia

A discussion forum for policy makers and regulators from Asia-Pacific Economic Cooperation (APEC) member economies was organized to sustain an open exchange of information and ideas on approaches, and policies and regulation for the safe utilization of agricultural biotechnology among economies. The participants came from 17 APEC economies and 4 non-APEC economies, with 85 officials from government ministries and regulatory agencies, and representatives from the industry and the private sector. The workshop was organized and supported by ISAAA, the United States Department of Agriculture Foreign Agricultural

Service, and the US-APEC Technical Assistance to Advance Regional Integration.

The discussions were focused on cooperation on best practices and tools on agri-biotech regulation, as well as genome editing and other plant breeding innovations. Science communication and public acceptance were also covered to equip the participants with skills on crafting communication strategies to increase global public awareness and acceptance of biotech crops and plant breeding innovations.

Forum on the Global State of Biotechnology

6-7 September 2018
Manila, Philippines

More than 150 executive and legislative officials from the Philippine House of Representatives, as well as selected members of the judiciary attended the forum, which is a biotech outreach program conducted by ISAAA and SEARCA BIC, in collaboration with the United States Embassy Manila, the House of Representatives, Philippine Judicial Academy, and the Philippine Association of Law Schools. The Forum was held on two separate events as part of an outreach grant from the U.S. Department of State. Experts and scientists enlightened the participants on different issues such as biotech trends in developing countries, the judicial and legislative process involved in crafting biotechnology regulations, and the science and strategic importance of biotechnology, particularly on the country's agricultural economy and food security.



UN Biodiversity Conference

November 2018

Sharm el-Sheikh, Egypt

ISAAA and its network of Biotechnology Information Centers (BIC) actively participated in the United Nations Biodiversity Conference. Delegates from the 196 Parties of the Convention on Biological Diversity renewed their commitment

to achieving global biodiversity targets by 2020 and set a roadmap for negotiations on the post-2020 biodiversity framework. In line with this, ISAAA released statements related to biotechnology, particularly in socio-economic considerations, capacity building, Biosafety Clearing House, and assessment and review of the effectiveness of the Protocol.



Workshop on Awareness and Capacity Building on Regulations for Agricultural Biotechnology

3-6 December 2018

Nay Pyi Taw, Myanmar

ISAAA, in partnership with the US Department of Agriculture and Ministry of Agriculture Livestock and Irrigation of Myanmar, organized a workshop intended to educate Myanmar regulators and policy makers on the scientific bases of biotechnology regulation, share global best practices of implementing biotechnology regulations, and highlight lessons learned and potential pitfalls to avoid. The workshop also aimed to provide policy makers and regulators with the technical know-how to carry out their responsibilities to ensure timely and predictable regulatory process in approving biotech applications, thus prevention of trade disruptions for trade partners including the USA.



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ISAAA recognizes the importance of Article 20 of the CBD that mandates parties to establish an online BIC portal for exchange of information and experience with LMOs. ISAAA maintains the most reliable repository of global database on LMOs. The database contains information about the commercial approval of LMOs and also the approval for import of LMOs granted by different countries for food and feed use. In addition, ISAAA's knowledge sharing program offers the global community with credible updated progress and adoption of LMOs in its annual report on commercialized LMOs, which has been a valuable resource for the parties in the last two decades.

DR. RHORODA R. ALDEMITA
Reading ISAAA's statement on Biosafety Clearing House presented in Working Group at COP14-MOP9 in Sharm El Sheikh, Egypt, November 20, 2018



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ISAAA urges parties of the Protocol to recognize that biotech innovations now cover 10% of the total arable land and have delivered the net economic benefits at farm level estimated at \$186 billion over last 2 decades. The farm economic gains accrued to over 17 million smallholder farm families is due to lower production costs and significant increase in productivity. ISAAA recommends that these socio-economic benefits shall form the classic examples of methodologies for socio-economic considerations.

DR. MARGARET KAREMBU
Reading ISAAA's statement on socio-economic considerations presented in Working Group at COP14-MOP9 in Sharm El Sheikh, Egypt on November 19, 2018



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ISAAA recognizes the need for capacity enhancement is greater now than in the past in the context of rapid technological advancement in biotechnology such as synthetic biology and gene drive that will allow Parties to expeditiously harness its benefits. The past experience pertaining to capacity building of LMOs reminds us to be precise, specific and based on sound science with a goal to support harnessing the benefits of modern biotechnology while mitigating its risks.

DR. MAHALETCHEMY ARJUNAN
Reading ISAAA's statement on capacity building presented in Working Group at COP14-MOP9 in Sharm El Sheikh, Egypt on November 19, 2018



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Underlining the need to protect and safeguard food production, health and wellbeing, ISAAA calls upon the parties to develop mechanism to enhance the integration under the Convention and its Protocol with respect to provisions related to biosafety, access and benefit-sharing, liability and redress and Article 8(j) related to indigenous peoples and local communities. ISAAA urges parties of the convention to bridge the differences, embrace technological innovations and ensure that the convention and the protocol are complementary to each other rather than contradictory we are witnessing today.

BHAGIRATH CHOUDHARY
Reading ISAAA's statement on integration under the convention and its protocol with respect to biosafety related provisions presented in Working Group at COP14-MOP9 in Sharm El Sheikh, Egypt, November 21, 2018



The sessions were focused on the global status and prospects on the commercialization of biotech crops, and current and future biotechnology initiatives in Myanmar; methods used for genetic improvement of plants and animals and the economic and environmental benefits of biotech crops; challenges in agriculture and the important role of biotechnology, the principles and trends in biotech crop regulation, including international agreements on biosafety and biotech regulation experiences in industrial and developing countries; food and environmental safety and risk assessment; and principles and applications of risk management and risk communication. The lectures were supplemented with workshop/group exercise on international guidance documents on food and environmental safety assessment, and message mapping and risk communication. A total of 46 participants joined the workshop.



Policy Dialogues and Related Activities

Apart from organizing meetings and workshops on biotech policies and regulations, ISAAA also provided travel support to the technical staff and senior officials of the Philippine Department of Agriculture (DA) under the ISAAA-DA Biotech Program Office (DA BPO) collaborative project. Attendance to the meeting enabled them to participate in the discussions on biotech policies related to research and development, safety assessment, and management.

Activities for the creation and promotion of a legislative agenda in support of agri-biotech in the Philippines were also conducted in collaboration with DA BPO. Consultations and discussions with key stakeholders and members of the legislature were regularly held to gather information, formulate and fine tune position papers, consensus documents, and policy recommendations for submission to the House of Representatives. Briefings on biotechnology were also conducted to gather support for biotech policies for potential champions of the technology.

Activities in collaboration with the Coalition for Agricultural Modernization in the Philippines (CAMP) were also conducted, with an objective

of drafting a bill in support of agricultural biotechnology in the Philippines. CAMP is composed of seasoned agriculturists, administrators, businessmen and entrepreneurs, educators, scientists, senior level government officials, and international civil servants.

After the engagements involving some members of the House of Representatives, House Bill 7926 or The Modern Biotechnology Act of 2018, was filed by Deputy Speaker Sharon S. Garin on 30 July 2018. The bill aims to eliminate regulatory complications hampering the commercial release of biotechnology products. The proposed bill seeks the creation of the Biotechnology Authority of the Philippines (BioAP) which shall serve as the policy-making body on biotechnology in the country. The bill is still pending for appropriate action by the House Committee on Science and Technology.



Capacity building

To strengthen the capacities of institutions on biotechnology, seminar-workshops, technical assistance, and knowledge sharing activities were initiated and supported in collaboration with local and international institutions.

Agri-biotech Boot Camp for Senior High School Students

6-8 November 2018

Los Baños, Laguna

Eighteen senior high school students and their teachers from seven provinces in the Philippines were selected to represent their respective schools at the Agri-biotech Boot Camp. The participants were oriented on edible landscaping; applications of biotechnology in crops and livestock; Simple Nutrient Addition Program Hydroponics; and SEARCA's initiatives in Farm Tourism and the

School and Home Gardens Project. They also visited University of the Philippines Los Baños National Institute of Molecular Biology and Biotechnology, the International Research Institute, and UPLB Institute of Plant Breeding. UPLB student organizations conducted interactive games which tested the participants' knowledge on agri-biotech. The agri-biotech boot camp, which is a build-up activity for the annual National Biotechnology Week, aims to create awareness of agriculture, introduce traditional technologies and biotechnology used in agriculture, and build interest among high school students and consider agriculture, specifically biotechnology, as a career.



Public information and outreach

ISAAA SEAsiaCenter initiated information, education, and communication (IEC) and biotech outreach activities through the SEARCA Biotechnology Information Center (SEARCA BIC). The activities were focused on raising public awareness on biotech crops and its benefits.

National Biotechnology Week in the Philippines

13-17 November 2018

Pasay City, Philippines

ISAAA and SEARCA BIC are two of the many organizations who actively participated in the exhibition. ISAAA showcased a gallery of images on biotech crops, promoting the newly-launched Biotech/GM Crops Image Gallery. ISAAA also conducted a short survey to measure the level of knowledge of the attendees on GM crops. SEARCA BIC conducted the *BIOTEKasayahan*, a series of interactive and educational games for the NBW guests, in collaboration with the UP Genetic Researchers and Agricultural Innovators Society and UP League of Agricultural Biotechnology Students.



Symposium on the Economics of Biotech Crops

17 July 2018

Los Baños, Laguna

ISAAA, SEARCA BIC, the International Rice Research Institute and the Philippine Economic Society hosted a symposium that tackled the socio-economic aspect of biotech crops including the global status of commercialization, biotech rice, the socio-economics of Bt eggplant, and the social and economic impacts of biofortification through genetic modification. More than 60 participants composed of scientists and experts, as well as representatives from the academe, national and international agencies/institutions, partners from the biotech and business sectors, and media practitioners attended the symposium



Biotech-on-Air

The radio program “Atraksyon Integrasyon” which discusses developments and experiences in biotechnology and related topics was supported by ISAAA through the SEARCA BIC. It featured current events and local scientific researches and projects, presented in news magazine format. The program was aired nationwide in 738 kHz station of DZRB Radyo ng Bayan. Topics discussed focused on various efforts of scientists and institutions on biotech R&D, updates on the Bt eggplant project, biotech advocacy initiatives, the new regulatory system and the role of agencies involved, and proposed biotech bills lodged in the House of Representatives.

In November 2018, airing of episodes was transferred to Noon Break Media (NBM), an online TV station streamed on Facebook which aims to show locally covered events, as well as news, regarding Science and Technology, Agriculture and other fields through different news programs.



/ KnowSciencePH

4,230 Likes

#KnowtheScience on social media

Through the power of social media, the Filipino public are exposed to the science behind crop biotechnology. The campaign *Know the Science* aims to educate the Filipino public about crop biotechnology through sharing news and feature

stories of people who adopt (farmers, consumers) or develop (scientists) biotech crops. *Know The Science* is part of the ISAAA-SEARCA BIC-DA Biotech Program initiative on biotech information, education and communication.



WE UNITE VOICES IN AFRICA

AfriCenter used a variety of initiatives to help unite voices of biotechnology in Africa, which includes knowledge sharing, awareness and outreach, policy advocacy, strengthening capacity in science, and biosafety communication and media engagement.



Knowledge sharing

One of the main goals of *AfriCenter* is to deliver facts on biotech to various audiences to facilitate informed policy decisions. However, the African experience on reaping the benefits of biotech is lacking. Thus, the *AfriCenter's* knowledge sharing programs deliver credible scientific information based on global trends and socio-economic impacts of agri-biotech.

The ISAAA annual report (Brief 53) was launched in 6 African countries (Burkina Faso, Ethiopia, Kenya, South Africa, Tanzania, and Uganda). These

events generated approximately 5 million media impressions, extending the reach of information on biotech crop adoption in the continent. The events also became platforms for policy pronouncements in support of biotechnology.



AfriCenter repackaged the report into multimedia knowledge products to tailor fit the needs and concerns of the African stakeholders. These materials were distributed during seminars/ workshops and meetings, as well as through web and social media platforms.



GLOBAL STATUS AND ECONOMIC BENEFITS OF BIOTECH MAIZE PRODUCTION BY 2017



TOP TEN FACTS ABOUT AGRICULTURAL BIOTECHNOLOGY AND BIOSAFETY IN AFRICA BY 2017

A monthly e-newsletter called *The Drumbeat* was launched by AfriCenter that feature interesting stories and trends in biosciences, with spotlight on Africa. The e-newsletter highlights the importance of bioscience expertise in Africa and underscore its capacity by informing key stakeholders on the progress of the continent in the biosciences. After releasing 9 issues, its mailing list reached over 1,300 subscribers consisted of policy makers, journalists, researchers, representatives of learning institutions, and key development partners.



Awareness creation and outreach

AfriCenter, together with other like-minded organizations, prioritizes activities that increases the awareness of various stakeholders on biotechnology. The outreach activities have been very effective especially in engaging them to raise up their concerns and be open to more information about the technology.

Sensitization workshops and seeing-is-believing tours were organized for key stakeholders such as government officials and agricultural experts involved in handling biosafety regulations; farmers

under the Society for Biotech Farmers of Kenya, a grassroots advocacy group promoting for biotech crop adoption in Kenya; private sector players in the textile and apparel industry including Kenya Private Sector Alliance members; women through the African Women for Biosciences network; and the youth.



Capacity strengthening

AfriCenter strived to mold the capacities of individuals involved in communicating the science and biosafety of biotech crops since they usually deal with various issues on the technology. By doing so, they will be able to relay fact-based information in clear and comprehensible manner that will ensure public trust on biotechnology and the people as well as organizations behind its research and development. A total of 6 communication trainings were conducted, reaching out to about 200 participants from over 15 countries in Africa.

Aside from strengthening the communication skills of key stakeholders, *AfriCenter* also prepared them for discussions on the technology, particularly in the UN Biodiversity Conference held in November 2018 in Egypt. A preparatory meeting was held to familiarize African parties and experts on key

agenda items for COP-MOP9 requiring consensus building key among them; and identify specific African interest issues and work towards advancing those interests during negotiations at COP-MOP9 through alignments with like-minded groups. It was attended by 78 participants with expertise in biosciences, animal, health, and environment, as well as heads of biosafety regulatory agencies from 20 countries in sub-Saharan Africa.

AfriCenter equipped the field staff of VIRCA Plus project's confined field trials with know-how on rapid response and reputation management policy. Since the trials garnered media attention and they sometimes receive unauthorized visitors, the VIRCA Plus project developed a standard operational policy to be followed by all parties involved in the project. During the trainings, the field staff were engaged in live simulations of possible scenarios that might occur in the field trial sites.



Media engagement

Various activities were conducted to capture the interest of media practitioners and maintain media coverage on biotechnology and the voices of individuals who speak about the benefits of biotechnology to the continent. A campaign was organized with a team of journalists and agri-biotech experts wherein they were brought to farms affected by drought and fall armyworm. The farmers' testimonies and biotech experts' recommendations were published in the mainstream media, serving to highlight the need for incorporation of appropriate biotechnologies in addressing key farm production challenges. A seeing-is-believing tour to the confined field trials of VIRCA Plus was also organized to expose the media practitioners to the progress of the project in managing various diseases. This led to publication of well-balanced articles by the leading media houses.

To recognize the role of media practitioners in the biotech dialogue in Africa, *AfriCenter*, through the Open Forum on Agricultural Biotechnology in Africa, hosted a media awards. Print, online, and television journalists were honored for their exemplary reporting of agricultural biotechnology.



Engagement with policy makers

Policy makers were consistently invited in the launch events of ISAAA Briefs to keep them updated about the latest trends in biotech crop adoption all over the world. Aside from this, courtesy visits, biotech and biosafety workshops, and seeing-is-believing tours were organized for policy makers.

A study tour to Bt cotton fields in India was organized for a delegation of Kenyan policy and decision makers, senior government officials from various regulatory agencies, and selected cotton value chain players. The experience exposed the participants to India's cotton and textile sector, familiarize them with Bt cotton hybrid farming experiences, as well as the country's model biotech crops regulation, insect resistance management practices, stewardship and commercialization processes. This activity led the policy makers from western Kenya to meet with President Uhuru

Kenyatta and recommended the approval of Bt cotton commercialization. In his public address on Heroes' Day, the President directed the Ministry of Health, Agriculture, Trade, Industry & Cooperatives, to work together and come up with a quick mechanism to revive the production of cotton, including the possibility of farming Bt cotton. A policy brief on the Bt cotton study tour to India was also developed by the Ministry of Industry, Trade & Cooperatives, State Department for Industrialization, to be distributed to other policy makers and government leaders. The first policy recommendation is lifting of the GM imports ban.



Communication and policy support

AfriCenter has been frequently requested to provide communications and policy engagement activities by various partners in support of their projects. The Center ensures that through such initiatives, a facilitative policy environment for safe and responsible use of biotech products is achieved.

AfriCenter was invited to mentor and build the capacity of fellows of Biosciences eastern and central Africa-International Livestock Research Institute Hub's Africa Biosciences Challenge Fund in science communication. This partnership has empowered over 50 researchers from 17 NARS' across Africa.

The Program for Biosafety Systems (PBS) work closely with *AfriCenter* to support the institutionalization and full implementation of functional biosafety regulatory frameworks in

PBS's 6 focus countries. The Center implemented various communication and outreach activities with PBS, including supporting the Bt cotton task force outreach efforts and sensitizing key players along the cotton value chain, contributing to the successful planting of Bt cotton nation performance trials. Furthermore, the Center also offered communication support to PBS's BioRAPP project, an initiative that seeks to provide decision makers with evidence on economic impacts of biotech crops adoption, through an *ex-ante* analysis.

The United States Department of Agriculture invited *AfriCenter* to facilitate the Mzima Cow roadmap for testing and regulation workshop. The Mzima cow is an ILRI project attempting to introduce resistance to trypanosomiasis, one of the most significant constraints to cattle production in Africa.



AfriCenter also supports the Virus Resistant Cassava for Africa (VIRCA) Plus product development team to document and effectively communicate the project's progress.

AfriCenter remains optimistic in the years ahead as progress is anticipated in 5 countries (Ethiopia, Kenya, Malawi, Nigeria, Swaziland) planting Bt cotton by 2020. Discussions on new breeding techniques and animal biotechnology are also catching up and the Center is positioning to tap into this to get new partners and support.



Partners and donors

- African Agricultural Technology Foundation
- African Biosafety Network of Expertise
- Alliance for Commodity Trade in Eastern and Southern Africa of COMESA
- Biosciences Eastern and Central Africa - International Livestock Research Institute
- CropLife International
- CropLife Asia
- Department of Agriculture-Philippines
- Donald Danforth Plant Science Center
- FuturaGene
- Intrexon
- J.R. Simplot Company
- Michigan State University
- Ministry of Industrialization and Enterprise Development, Kenya
- National Commission for Science, Technology and Innovation, Kenya
- Program for Biosafety Systems of International Food Policy Research Institute
- Ram and Rashmi Charitable Foundation of the St. Louis
- SEAMEO SEARCA
- Society of Crop Agribusiness Advisors of Kenya (SOCAA)
- United States Department of Agriculture
- UPLB Foundation Inc./Cornell University

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