



ISAAA

in

2017

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 those who need to make informed decisions about their 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.



2017: Year in review

Just before 2017 drew to a close, the Society of Toxicology, a professional membership association comprising over 8,000 scientists worldwide, declared that there is no verifiable evidence that genetically engineered (GE) crops cause adverse health effects. Similarly, scientists who participated in the International Food Biotechnology and Biosafety Workshop in Turkey released a final declaration that emphasized the need for modern biotechnology as a key technology for food and agricultural science. These powerful statements of experts in the field add up to several other esteemed organizations that have earlier declared the safety and potential of biotechnology to address the most pressing needs for food, feed,

fiber, and fuel. In the developing countries particularly in Africa, Asia, and Latin America, research and regulations on biotech crops are moving forward, raising the hopes of farmers and consumers that more helpful biotech products will be available for them in the future. ISAAA, on the other hand, continually engage influential stakeholders and empower them to actively participate in the biotech dialogue. Aside from its science communication initiatives, ISAAA and its network diligently strive to help shape sound policy and regulations that will enable the responsible deployment and adoption of biotech crops. ISAAA also provides support to enable transfer of appropriate biotechnologies. This report summarizes the activities of ISAAA in 2017 focused on bringing the benefits of biotechnology to help uplift the lives of the growing population, especially in the developing world.



Message from the Global Coordinator

Dr. Randy A. Hautea

Decades of biotech research and commercialization have clearly demonstrated the benefits and safe use of biotech crops. Internationally trusted organizations such as the World Health Organization, the Food and Agriculture Organization of the United Nations, The World Academy of Sciences, and over 200 scientific organizations, have declared a consensus about the safety of GM crops. However, the technology continues to face criticisms from skeptics and the misinformed public. ISAAA helps dispell fears and doubts about biotechnology by engaging various stakeholders and delivering information based on scientific facts.

As a strong evidence of biotechnology's potential and benefits, 18 million farmers all over the world planted 185.1 million hectares of biotech crops in 2016. This is the highest area of biotech crop adoption since its first year of commercialization in 1996 which was just 1.7 million hectares. Thus, there has been a ~110-fold increase over a period of 21 years, making biotech crops the fastest adopted crop technology in recent times.

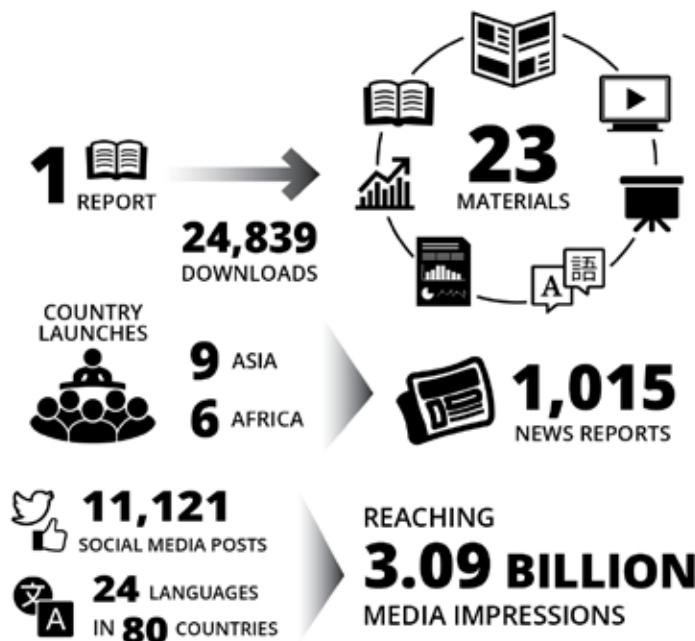
The *Crop Biotech Update*, which is the only weekly e-newsletter service that provides the latest agri-biotech news and research developments, reaches out to over 22,000 subscribers worldwide. ISAAA has also been more active in social media to engage more stakeholders, especially the younger generations, who will later make choices for the future of their own families, communities, and global society. New publications are continually developed presenting updates of the technology in various fields of application. ISAAA has served as the top source of information on biotechnology cited in major newspapers.

ISAAA fulfills its mission with the help of partners who share with us the unwavering conviction that responsible deployment of new technologies can help the alleviation of poverty and malnutrition, especially in developing countries. The unmet needs and challenges for a more food secure world

are far greater in developing countries and regions and they should have access to all available tools that can potentially help meet the needs.

ISAAA will continue working towards helping more families uplift their lives through the benefits of biotechnology. The biotech farmers in various countries, who commonly profess that growing biotech crops have helped them send their children to school, acquire a home for their families, and live a healthier life with less pesticides, will continue to be our inspiration to make our best efforts in knowledge sharing, engagement, and support to technology development. We are confident that the stories about the benefits of biotechnology will never stop to resonate in countries where such technologies are making a difference.

Milestones



CROP BIOTECH UPDATE



20 BICS & PARTNERS

WORKING TOGETHER TO INFORM THE PUBLIC ABOUT THE BENEFITS OF BIOTECHNOLOGY



from 17 APEC economies participated in a high level policy dialogue on safe use of agri-biotech.



learned about the new Philippine biotech regulations through public briefings.

Experts from **Bangladesh** visited the **Philippines** to discuss **Bt Brinjal/ Eggplant** adoption.



from 15 countries in Asia, Africa, and Europe discussed international regulations related to agri-biotech.



in the Philippines equipped with knowledge on social media storytelling.

A VIRTUAL LAUNCH OF THE **ISAAA REPORT** held for African stakeholders which guided policy pronouncement in support of the technology.



10,000 FARMERS formed the **Society for Biotech Farmers of Kenya** and voiced out their desire to plant biotech crops to key government leaders.



visited the Bt maize (Kenya) and the Bt cotton trials (Malawi) to know the technology's potential and the region's progress and capacity.

The **Petri Dish** by Malaysian BIC continued to be a popular influencer of modern biotech, with over 5,000 readers including policy makers, consumers, students, and scientists in Malaysia, Indonesia, Pakistan, and other countries.

South Asia Biotechnology Center launched a campaign to support GM mustard, leading to 250 letters of recommendations from key stakeholders and Nobel Laureates to approve the crop in India.



3,500 FARMERS from Lamongan, Indonesia were gathered by Indonesian BIC to encourage corn self-sufficiency in Indonesia with the help of biotech.



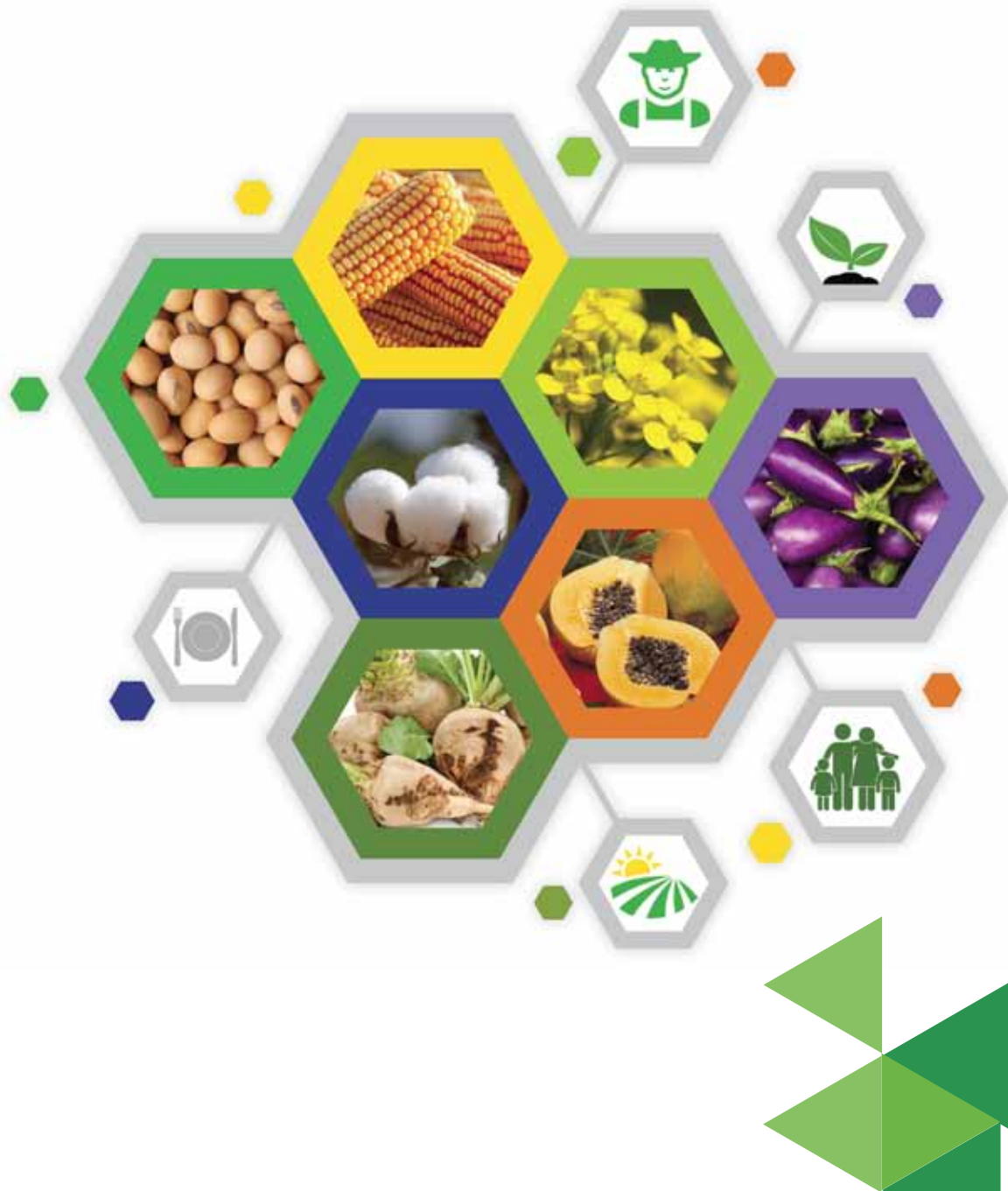
Uganda BIC's efforts in training current and future scientists to communicate the relevance of biotech research contributed to the passage of the National Biosafety Act.



**We feed the
world with
knowledge**

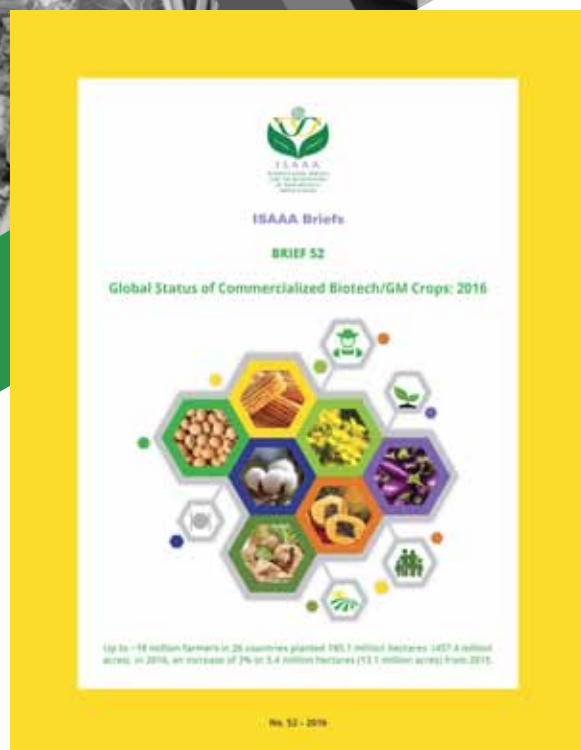
Global Knowledge Center on Crop Biotechnology

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. Seventeen 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.



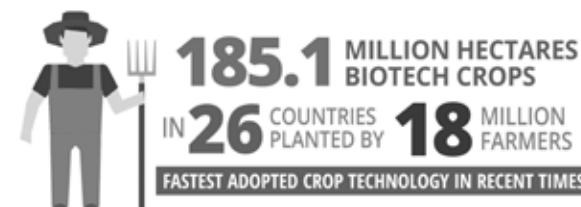
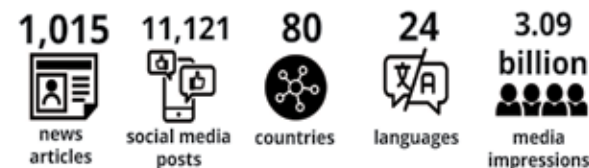


Global Status of Commercialized Biotech/GM Crops: 2016



ISAAA gathers information on the annual adoption of biotech crops, and analyzes the current and future trends. The results are summarized in an annual brief, which is the most sought after source of latest data on global GM crop adoption since 1996, when the biotech crop commercialization started. In 2017, ISAAA released the full report titled *Global Status of Commercialized Biotech/GM Crops: 2016* (Brief 52) featuring the distribution of biotech crops by country, crop, and trait and the economic benefits accrued from adoption. Discussions of the trends in biotech crop approvals and regulations were also included in the report. The report was launched in 9 Asian and 6 African countries, and has reached over 3 billion media impressions.

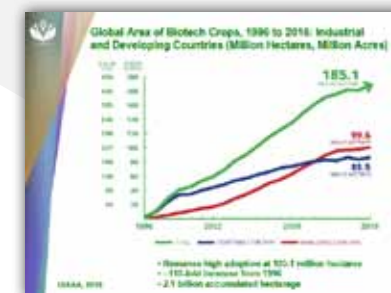
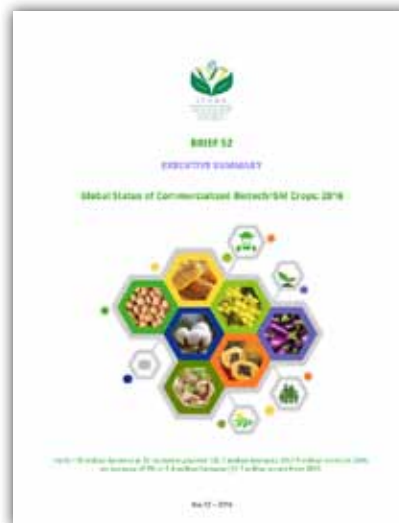
Media Impressions





Publications & Videos

ISAAA Brief 52 was repackaged into different types of resources to highlight certain topics and capture the interests of various audiences.



Aside from the annual global adoption report and its derivatives, KC has also developed various publications which were distributed online and in print to developing countries to sustain interest on biotechnology. Some of the publications released in the previous years were also updated using recent reports on biotech adoption and benefits.



ISAAA Online



The ISAAA website (www.isaaa.org) serves as the portal to a plethora of information resources including publications, crop biotech and biofuels news, and GM crop approval updates. With its new design and better accessibility in smart phones, the website now captures a wider scope of audiences.

www.isaaa.org

72,504



unique visitors

149,821



visits

549,697



page views

*monthly average, January-December 2017

Crop Biotech Update

Since 2000, ISAAA's weekly e-newsletter Crop Biotech Update (CBU) delivers global news and research highlights on biotechnology which have implications for developing countries. It also comes with a biweekly Biofuels Supplement. Through the CBU, over 22,000 subscribers worldwide receive the latest news on agri-biotech. Aside from the mailing list, news from the CBU are distributed through other channels such as the ISAAA website, RSS feed, independent mailing lists of some BICs, Facebook, Twitter, Send to Friends tool, and links from other websites. To date, it is the only e-newsletter focused on reporting about crop biotechnology.

22,880



SUBSCRIBERS
WORLDWIDE

INDEPENDENT MAILING
LISTS OF BICs



260,080



SEND TO FRIENDS
14,341/mo

ISAAA WEBSITE



60,709
pageviews/mo

CBU & BIOFUELS RSS



118,234/mo

LINKS FROM
OTHER WEBSITES



7,753

FACEBOOK SHARES



5,177

GM Approval Database

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



GM Approval Database remains on the top of Google search results on GM crop event approvals, indicating ease of access to the portal. It contains all the latest approval data including regulatory and biosafety documents released by adopting and importing countries. It also enables users to do advanced search by crop, commercial trait, developer, country, or type of approval. Thus, it is frequently used by researchers worldwide as a source of GM crop approval data.

Social Media

ISAAA blog (isaaablog.blogspot.com) relates recent events and stories on agri-biotech in a conversational and easy-to-understand approach. Topics posted include trending news on crop biotech in 2016, highlights of biotech crop adoption in 2016, Brief 52 launch events in Asian countries, and the results of a biotech communication research conducted in the Philippines.

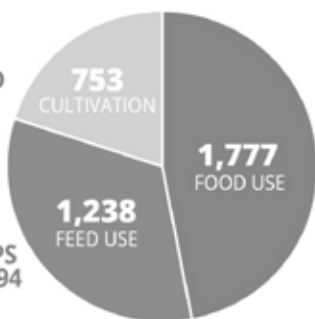
The ISAAA.org on Facebook has been officially

authenticated by Facebook as an official page owned by the organization, which is indicated by a gray check badge. Verified Pages are also specially optimized by Facebook to appear higher in the search results than other pages. This makes ISAAA to be ahead of other pages that post fake news about biotechnology.

A large percentage (30%) of the growing Twitter followers of ISAAA belong to organizations and groups, such as universities, research institutions, seed/producers groups. This indicates that such groups follow ISAAA to get real time updates on crop biotechnology.

The Brief 52 social media campaign with official hashtags #GMCrops2016 and #ISAAAResult2016 reached 91,898,150 media impressions.

40 COUNTRIES
HAVE ISSUED
3,768
REGULATORY
APPROVALS
FOR **26** GM CROPS
SINCE 1994



Communication Research

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Full Paper

Seventeen Years of Media Reportage of Modern Biotechnology in the Philippines
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A 17-year (2000-2016) study was conducted to understand the print media representation of modern biotechnology in the Philippines. The first 15 years (2000-2015) of print media reportage was published in 2015 covering the development and commercialization of biotech corn in the country. An addition of seven years (2016-2016) of print and online news articles covering the recent happenings in the biotechnology arena of the country such as the research and development of biotech food crops (Bt eggplant and Golden Rice) were analyzed to investigate if there was a change in the number of news reporting about biotechnology. A total of 2,219 articles on biotechnology from the leading national newspapers, Manila Bulletin, Philippine Daily Inquirer, Philippine Star, and Business Mirror, covering a total of 17 years (2000-2016), were analyzed in terms of article type (news, feature, opinion, and photo release), tone (positive, neutral or negative), news sources, message frames, and indicators used. Results showed that Manila Bulletin published the most number of articles during the 17-year time period. The majority of the articles in the four newspapers were local in focus, and appeared in the first half of the newspaper. The number of articles with positive tone increased from 41% in the first decade to 58% in 2010-2016, mostly published by Manila Bulletin. National government agencies and representatives were consistently cited as main sources of information for both local and national biotechnology and genetic modification news. The major keywords used since 2000, in the recent seven years (2010-2016), less number of negative keywords such as "transgenic" and "toxin" were used in the articles. Just the decline in the use of fear appeal, another dominant indicator domain, and was potential or positive being positive seen as "new hope", "answer to farmers' dreams", and "sign of hope". The number of articles framed towards social progress also increased significantly over the last seven years (2010-2016), indicating a more positive discussion of biotechnology in the media. These results show a gradual progression of editorial perspective in the Philippine newspapers towards modern biotechnology.

Keywords: biotechnology, media monitoring, print media, news framing

INTRODUCTION

Biotechnology is a set of tools that uses living organisms or parts of living organisms to make a modify a product, improve organisms for specific purposes. Biotechnology tools include conventional plant breeding, tissue culture technology, plant genetic engineering, and the recent techniques such as genetic engineering, molecular breeding, marker-assisted selection, and gene editing.

Public acceptance and adoption by farmers of modern biotech... address public environmental... in 1996, the global... over a hundred... This, followed on... Philippines is one... and income... potential for crop... crop corn. About

702,000 ha of biotech corn in 2015, up from only 20,000 ha in 2003 when it was first adopted for commercial planting (James 2003 and James 2015).

While technology is one thing, equally important is understanding the role of mass media in contributing to an environment for discussion and debate on issues and concerns that affect societal interest and motivation. The media serve as an important reservoir of images, messages, and definitions that different

visions observed over the available media sources of our



KGN Tome et al.

From Fear to Facts 17 Years of Agri-biotech Reporting in the Philippines (2000-2016)



ISAAA and SEARCA BIC conducted a 17-year media study (2000-2016) to analyze the trends in Philippine print and online reporting on modern crop biotechnology. The study is part of the Know the Science project funded by the Philippine Department of Agriculture's Biotechnology Program Office (BPO). The result of the study was published in the April 2017 issue of Philippine Journal of Crop Science and presented in the 24th Scientific Conference of the Federation of Crop Science Societies of the Philippines (FCSSP).

The study, which reviewed 2,219 articles from top Philippine newspapers (Manila Bulletin, Philippine Star, Philippine Daily Inquirer, and Business Mirror), showed that over the past 17 years of reporting, the Philippine media exhibited a mature editorial stance on biotechnology, which happened gradually through the years. This is manifested by the decrease in the number of articles in negative tone; increase in the use of metaphors relating to potential/promise; decline in the use of biotech critics as sources of information; and increase in the number of articles framed towards social progress, highlighting the positive impact of crop biotechnology. For the past seven years (2010-2016), the top sources of information on biotechnology were Dr. Clive James (ISAAA Founder and Emeritus Chair) and ISAAA. It was

recommended that media practitioners and scientists must continue to collaborate to sustain the public interest on the technology.

ISAAA also presented the study through different publications such as booklets, infographics, and blogs to highlight the findings.

Top Sources of Biotech Information in PH newspapers (2010-2016)



Dr. Clive James
Founder and Emeritus Chair of ISAAA

ISAAA

Top keywords used in the articles

GMOBt
biotech
genetic engineering
Golden Rice

Capacity Building

Briefings on new PH biotech regulations



Cebu, PH



Davao, PH



Pampanga, PH

Storytelling Agri-Innovations through Social Media



Cagayan de Oro, PH



Pampanga, PH

New biotech communication initiatives



Kuala Lumpur, MY

24th Scientific Conference of the Federation of Crop Science Societies of the Philippines

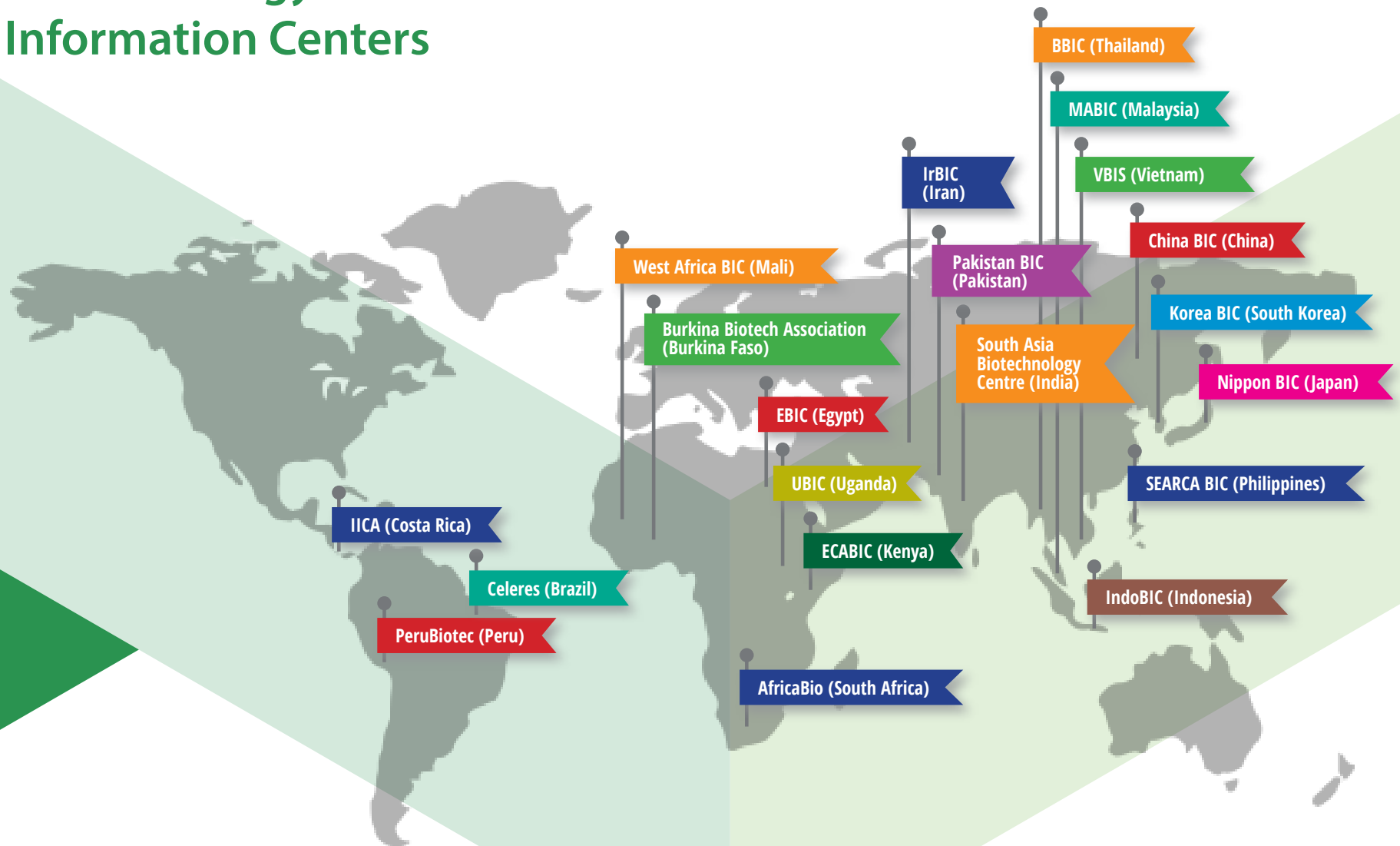


Iloilo City, PH



Davao, PH

Biotechnology Information Centers



Bangladesh Bangla translation of CBU articles are distributed through the ISAAA and Bangladesh Agricultural Research Institute (BARI) websites to report about the developments in biotechnology that are relevant to the country. Together with Bangladesh Agricultural Research Council, ISAAA and partners launched ISAAA Brief 52 to members of the government's agricultural R&D sector, regulators, and media to update them about the status, impact, and prospects of agri-biotechnology in 2016, highlighting the benefits accrued by the country in adopting Bt brinjal.

Brazil Portuguese-speaking stakeholders have access to science-based information and agri-biotech news through the Portuguese translation of the CBU, uploaded on the ISAAA website.

China ISAAA, China Biotechnology Information Center (CABIC), in cooperation with Fleishman/Hillard, launched the 2016 ISAAA Brief 52 report in two events—a media conference and a seminar. The media conference was attended by some 40 journalists from Chinese and international news agencies who reported about the developments in agri-biotech in 2016 based on the report. A seminar was also held at the Chinese Academy of Sciences, which was attended by 120 scientists, members of the academe, and students. The seminar was organized in cooperation with Chinese Academy of Agricultural Sciences and the Chinese Biotechnology Society.

Egypt A science exchange program was held between Cairo University, Egypt and Helsinki University in Finland. Prof. Naglaa Abdallah of Cairo University and director of Egyptian Biotechnology Information Center (EBIC) equipped the participants with knowledge on new breeding techniques used to improve abiotic stress. Dr. Abdallah and her research team are currently using gene editing to improve drought tolerance in canola and wheat.



India South Asia Biotechnology Centre (SABC) launched a campaign in support of GM mustard, which includes a country-wide networking, social media campaign, and mobilized support for GM mustard targeted towards the scientific community researchers, bureaucrats, policy makers, students, and farmers. This resulted to 250 letters from key stakeholders including Nobel Laureates recommending the approval of GM mustard. These were submitted directly to Ministry of Environment, Forest and Climate Change (MOEFCC) within a month after the Genetic Engineering Appraisal Committee approves GM mustard for commercial planting. SABC also provided support to the African Biotech/Biosafety Study Tour in India which was attended by Uganda's Minister of Science, Technology, and Innovation, Dr. Elioda Tumwesigye.



Indonesia The Indonesian Biotechnology Information Center (IndoBIC) conducted several activities to engage farmers in the agri-biotech discussion. In one of their major activities in 2017, IndoBIC gathered 3,500 farmers from Lamongan and surrounding districts for a farmers meeting and ceremonial corn harvest in East Java, Indonesia. IndoBIC encouraged

farmers to support corn self-sufficiency in Indonesia.

Japan Nippon Biotechnology Information Center continues to translate issues of the CBU to inform 20,000 Japanese readers about the latest news and developments in agri-biotech. NBIC also launched ISAAA Brief 52 to 120 stakeholders including representatives from the media, government, academe, and the industry. A biotech cartoon contest among secondary school students is held annually.



Malaysia *The Petri Dish* by Malaysian Biotechnology Information Centre (MABIC) continues to be a key public influencer on modern biotechnology with key readers including all Malaysian ministers, making it an effective media to influence policymaking. Articles and interviews for Minister of Science, Technology, and Innovation is crafted by MABIC and published in *The Petri Dish*. MABIC serves a strategic partner to most ministries and government agencies in promoting science, technology and innovation and also plays a role in reviewing existing policies and developing new ones. MABIC also sits on the Ad-hoc Committee on Biosafety under the Biosafety Department that deals with agribiotech industry players. MABIC also plays a role in giving input in developing curriculum for science/biology in areas of modern biotechnology and biosafety under the Ministry of Education for the schools. MABIC sits on the industry advisory board for six universities (public and private) to provide input to develop curriculum to suit the industry needs and develop market-ready graduates.



Pakistan The Pakistan Biotechnology Information Center (PABIC) played an important role to tie up China National Rice Research Institute (CNRRI) of Hangzhou with Government of Sindh Province. A delegation of CNRRI together with the Director of PABIC, Prof. M. Iqbal Choudhary met with the Minister of Agriculture, Sindh Province, Pakistan which led to the initiation of agriculture based projects. CNRRI will also train young Pakistani researchers in field to effectively utilize modern biotech techniques to improve local rice varieties.

Peru Constant diffusion of information on modern biotechnology using ISAAA publications has been continued in local networks. Several major conferences have featured presentations on modern biotechnology by PeruBiotec members including one promoted by the National Research and Technology Council of Peru, and one of the northern Association of Engineers of Peru.

Philippines With the new biotech and biosafety guidelines implemented in the Philippines, SEARCA Biotechnology Information Center (SEARCA BIC) and partners conducted four public briefings in seven key regions of the country. Over 800 consumer group members, regulators, farmer-leaders, educators, and students attended the public briefings. Aside from informing them about the new Joint Department Circular, they also learned about the basic concepts of biotechnology.

Thailand Biotechnology and Biosafety Information Centre (BBIC), together with the Biotechnology Alliance Association, launched ISAAA Brief 52 alongside a special seminar on A-Z genome editing technology for agriculture. The seminar was attended by 70 participants including farmers, media practitioners, post graduate students, regulators, and academia.

Vietnam Vietnam Biotechnology Information Service, in collaboration with Vietnam Genetics Association, Agricultural Genetics Institute, and Phu Yen Center for Application and Transformation of Technology, organized a conference on biotechnology applications and genetically modified crops in Tuy Hoa City, Phu Yen, Vietnam. The ISAAA report was also presented in the conference, which was attended by leaders of Phu Yen Department of Science and Technology, and more than 120 representatives from various agencies, departments, universities and farmers associations.

East and Centra Africa The key *AfriCenter* highlight in 2017 was hosting of the 2nd Agri-Biotechnology and Biosafety Communication (ABBC-2017) Africa symposium in Uganda. The forum, co-organized with 10 partners, involved over 100 biotech and biosafety stakeholders internationally. Themed “Strengthening Communication for Improved Biosafety Management”, various communication approaches were interrogated and best-bet biosafety communication practices identified with story-telling emerging top. A policy dialogue led by Uganda’s Science, Technology and Innovation Minister Dr. Elioda Tumwesigye reflected on importance of evidence-based dialogue to build confidence and informed decision-making on the technology. This contributed towards informed parliamentary debates that led to passage of Uganda’s Biosafety Bill in October 2017. The symposium attracted high social media traction becoming a

trending topic in Uganda for three consecutive days. #ABBC2017 had over 1,600,000 impressions and reached over 200,000 followers.



Uganda 2017 was a very important year for the Uganda Biosciences Information Center and the whole biotechnology community in Uganda with the passage of the National Biosafety Act. On October 4, 2017, the Parliament of Uganda decisively passed the Act, bearing fruit for the five years of UBIC and its partners engaging members of 9th and 10th Parliament. UBIC was a key player in this event by training and coordinating scientists from the National Agricultural Research Organization (NARO) to communicate about the relevance of their research to the end-users. UBIC developed materials for sensitization activities of key stakeholders such as representatives of ministries responsible for S&T, Agriculture and Education.

More details about the initiatives of BICs in Africa can be found on page 26.

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 technology transfer

ISAAA continues to provide technical assistance for the commercialization of insect resistant Bt eggplant developed by researchers at the University of the Philippines Los Baños Institute of Plant Breeding. The developers are currently completing the regulatory dossier required by the Philippine government prior to approval of the crop for food, feed, processing, and cultivation. Additional research data were collected to complete the requirements for the regulatory dossier.

In preparation for the probable release of the Bt eggplant in the Philippines, ISAAA and partners conducted a public briefing to eggplant farmers and other stakeholders from Region IV to inform them about the technology and its potential benefits.

Key persons involved in the development and commercialization of Bt brinjal in Bangladesh visited the Philippines to share their learnings and experiences on research and development, regulations, and farmer adoption.

Some of these initiatives were funded by the Feed the Future Eggplant Improvement Project-Philippines.



Advancing biotech policy and regulations

ISAAA initiated and supported discussions on biotech policies, regulations, and development.

APEC High Level Policy Dialogue on Agricultural Biotechnology

Seventeen Asia-Pacific Economic Cooperation (APEC) economies represented by 92 officials attended the workshop 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 workshop centered on the theme *Agricultural Biotechnology: Driving from 1G to 5G* was held in August 2017 in Can Thó, Vietnam. The discussion highlights include issues and concerns, regulation, information sharing, along with successes in the use and adoption of crop biotechnology. Biotech and regulation experts from various economies raised up the challenges on advancing innovation to commercialization stage, regulation cooperation, public-private partnerships, and international

engagement efforts on low-level presence of living modified organisms (LMOs).

The workshop was organized and supported by ISAAA, the United States Grain Council (USG), United States Department of Agriculture-Foreign Agricultural Service (USDA-FAS), the US-APEC Technical Assistance to Advance Regional Integration Activity (US-ATAARI), and CropLife. Vietnam's Ministry of Agriculture and Rural Development (MARD) served as the host institution.



Workshop on International Regulations Related to Agri-biotech

ISAAA, together with Monash University, Malaysian Biotechnology Information Centre (MABIC), Public Research and Regulation Initiative (PRRI), and Ministerial Standing Committee on Scientific and Technological Cooperation of the Organization of Islamic Cooperation (COMSTECH) organized a workshop discussing regulatory, scientific, and communication aspects of implementation of international agreements relevant to agri-biotechnology such as the Cartagena Protocol on Biosafety, Nagoya Protocol on Access and Benefit Sharing, and Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress. Some 36 scientists and science communicators from 15 countries in Asia, Africa, and Europe attended the workshop held at Monash University, Kuala Lumpur, Malaysia. Representatives from public and private sectors also participated in the discussions.

Prof. Piet van der Meer, a biologist and lawyer from Ghent University and Free University of Brussels, led the discussions on the international agreements, as well as key topics such as risk assessment, socio-economic considerations, and public awareness. Perspectives from the public and private sectors were delivered by Dr. Desiree Hautea, a University

of the Philippines Los Baños scientist, Dr. Felicity Keeper, Global Regulatory Manager at Bayer Australia and Dr. Lucia de Souza of PRRI. Dr. Mahaletchumy Arujanan, Executive Director of MABIC, discussed the considerations in facilitating public acceptance of biotechnology.



Joint Department Circular on Biotechnology Regulation in the Philippines

With the new regulations implemented in the Philippines, regional public briefings were organized by ISAAA, SEARCA BIC, and the Philippine Department of Agriculture. Around 800 key stakeholders attended the four regional briefings held in Cebu City, Davao City, Cagayan de Oro City and Pampanga. The participants, including members of the consumer groups, regulators, farmer-leaders, faculty and students, information officers, and staff and officials of the local government units, were given lectures on the different tools and applications of modern biotechnology, environmental and food safety issues, biotech crops commercially available in the country and elsewhere, and biotech crops being developed and in the pipeline. Representatives of the five government agencies (Agriculture, Science and Technology, Health, Environment and Natural Resources, and Interior and Local Government) involved in the development and implementation of the new regulatory system were also present during the briefings to address the concerns of the public.

Policy dialogues and related activities

ISAAA, in collaboration with the Philippine DA-Biotech Program Office (DA-BPO), provided travel support to DA staff attending high level policy symposium/dialogue organized by international organizations including the ASEAN Genetically Modified Food (GMF) Testing Network (Nay Pyi Taw, Myanmar) and APEC HLPDAB Meeting and other APEC ministerial meetings in Can Thó, Vietnam.

Together with DA-BPO, ISAAA also conducted activities for the creation and promotion of a legislative agenda supporting agri-biotech development in the Philippines. A series of focused group discussions and consultations with key stakeholders and members of the legislature were executed.

Study Visit to Biotech Crop Fields

Under a collaborative project with DA-BPO, ISAAA organized a study visit to the Philippines for Bangladesh biosafety regulators, as requested by the Department of Environment – Implementation of the National Biosafety Framework (INBF) Project of Bangladesh. Five Bangladesh regulators attended a regulations briefing at the DA headquarters, introduction to the Bt eggplant project at UPLB-IPB,

discussions with the Golden Rice researchers at the International Rice Research Institute, field visits to commercial Bt corn fields and eggplant farms in Tarlac and Pangasinan.



Capacity Building

Agri-biotech Boot Camp

Twenty-nine (29) senior high school students and their science teachers from Isabela, Laguna, Iloilo, Cebu, Davao, and Cagayan De Oro were enlightened on the issues and trends in agriculture and agri-biotech during the Agri-biotech Boot Camp for Senior High School Students at the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) Headquarters, Los Baños, Laguna, Philippines.

The activity was conducted to create awareness and build interest in agriculture and introduce

traditional and modern biotech as a career among the students. The boot camp is a build-up activity for the 13th National Biotechnology Week celebrated on November 20-24, 2017 at Fisher Mall, Quezon City.

Aside from lectures, briefings and study visits to the biotech laboratories and facilities of the University of the Philippines Los Baños - Institute of Plant Breeding (UPLB-IPB) and UPLB-National Institute of Molecular Biology and Biotechnology (UPLB-BIOTECH), and the Rice World Museum of the International Rice Research Institute (IRRI) were also conducted. Interactive games related to biotech were facilitated by student organizations University of the Philippines League of Agricultural Biotechnology Students (UP LABS) and UP Genetic Researchers and Agricultural Innovators Society (UP GRAINS).



AgStorytelling in Social Media

ISAAA social media managers shared some techniques on how to promote agricultural innovations such as biotechnology to a wider reach through social media. Information officers from the DA regional offices attended the workshops held in Davao City, Cagayan de Oro City, and Pampanga and learned how to develop and execute a social media plan, create visually engaging and informative posts, and harness the power of storytelling in engaging the public.



Public Information and Outreach

ISAAA and SEARCA BIC used the power of social media to educate the Filipino public about the science behind crop biotechnology. A social media campaign was started and led by SEARCA BIC under a project with DA-Biotech. Personal stories of key stakeholders such as scientists, farmers, and consumers were also featured in the social media pages.

Over 700 gameboard kits of #BiotechisCool were distributed by ISAAA during the Philippine National Biotechnology Week. Copies of other ISAAA publications were also distributed to the attendees of the event.



The biotech-on-air radio program *Radyo Teknolohiya* continues to reach the public through DZRB Radyo ng Bayan aired weekly in all provinces of the Philippines. The program covered various issues on biotech including research updates, science communication, the new national regulations, animal biotech, and agricultural modernization.



AfriCenter: 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

AfriCenter used knowledge sharing as one of its tools to provide credible scientific information on global trends and socio-economic benefits of agri-biotech adoption, with the hope to impact policy and public opinion.

One of the major activities held was the virtual launch of ISAAA Brief 52, which generated approximately 4 million media impressions in the continent. To fortify this impact, six physical launches of the Brief were also conducted in Cameroon, Ethiopia, Kenya, Malawi, South Africa, and Uganda. Printed copies of the Brief were also distributed to key stakeholders such as policy makers, media practitioners, members of the academe, researchers, and other partners in development.



Ethiopia



Malawi



Uganda

The Brief was also repacked to suit the African audience. This was distributed together with other materials published by AfriCenter, Open Forum on Agricultural Biotechnology in Africa (OFAB), Program for Biosafety Systems (PBS), and Virus Resistant Cassava for Africa (VIRCA) Plus project.



Awareness Creation and Outreach

AfriCenter harnessed the power of partnerships in developing public awareness on biotechnology and biosafety. Together with Common Market for Eastern and Southern Africa (COMESA), OFAB Kenya, PBS, and VIRCA Plus, *AfriCenter* accomplished significant breakthroughs in Africa.

Through the engagement efforts of *AfriCenter* and its partners, almost 10,000 farmers have joined an officially-registered organization known as Society of Biotech Farmers of Kenya (SOBIFAK). Since its formation, members of the group have been proactive in expressing their desire to adopt biotech crops. They have petitioned the Deputy President of Kenya to be true to his word in lifting the GMO import ban and allow National Performance Trials. Furthermore, they sought the attention of key government officials and policy makers in maize, cassava, and cotton growing regions.

Biotech workshops and seeing-is-believing tours were also held for influential groups in Kenya, including Women in Biosciences, businessmen, private sector alliance, youth, and faith-based leaders.

Exposure visits to Bt maize confined field trials (CFTs) in Kenya and Bt cotton NPTs in Malawi provided experiential learning to around 150 stakeholders including journalists, social media influencers, entrepreneurs, farmers, and regulators. Because of the study tour, the Kenyan government is currently following Malawi's NPT design. Key players in the cotton value chain who participated in this study tour serve as members of a Government-led National Taskforce for Commercialization of Bt cotton formed in June 2017.



Capacity strengthening

AfriCenter has been an authority in helping build biosafety communications capacity of organizations that are concerned with biosafety issues. Over 250 individuals gained stronger capacity in biosafety communication through the trainings delivered by *AfriCenter* for the year.

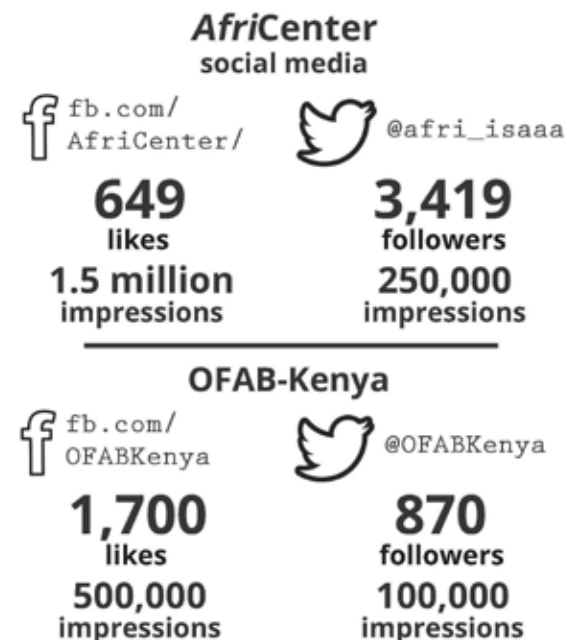
Media engagement

Media practitioners are vital influencers in forming public opinion and trust. Thus, *AfriCenter* worked closely with journalists and editors to ensure that news on agri-biotech and biosafety are reported using facts. They were invited to sensitization workshops and seeing-is-believing study tours so they can personally see and experience the benefits of the technology.

Two regional workshops for media practitioners and social media influencers were held in Ethiopia and Malawi, which also expanded the contacts of the Center for the formation of a science communicators network in Africa. *AfriCenter* also started a Science Cafe in Nairobi, Kenya to regularly update media practitioners about the progress with biotech crop research in the continent. It also served as a platform to pair journalists and scientists.

Science reporters who contributed to public understanding of biotechnology were honored and awarded in a ceremony organized by *AfriCenter*, in collaboration with African Agricultural Technology Foundation (AATF) and National Council of Science and Technology.

The online presence of *AfriCenter* has increased in 2017, with the help of social media influencers who have participated in the *AfriCenter* activities.



Policy engagement

The commercialization of biotech crops relies on the actions of policy makers equipped with factual understanding and appreciation of the technology. Thus, *AfriCenter* ensures that policy and decision makers are well-versed about developments in agri-biotech in Africa, and in other regions of the world.

Policy makers were invited to participate in Brief 52 launch events in select African countries. Some policy makers were also requested to officiate key workshops and conferences across the region. These events became avenues for pronouncements of policy support for the technology.

AfriCenter organized a consultative meeting for Kenyan Members of the Parliament from the Agriculture Livestock and Cooperatives Committee to sensitize legislators on the biosafety regulatory framework and deliberate on the status of biotechnology in Kenya. It also presented a platform for MPs to clarify certain recommendations of a GMO report that was tabled in Parliament in December 2016. The engagement enabled experts to address concerns that led to the committee's endorsement of the National Performance Trials (NPTs) and support for home-grown biotech research.

The newly appointed chair of the National Biosafety

Authority Board of Kenya participated in the study tour to VIRCA Plus' regulatory field trial. The board chairs of two key regulatory agencies, National Environment Management Authority and Kenya Plant Health Inspectorate Service, were also exposed to the NPTs of Bt cotton in Malawi.

Technical officers from select government ministries and senior managers of the Kenya Agricultural and Livestock Research Organization were also exposed to the regulatory field trial of VIRCA Plus.



Policy Support Services

Aside from the engagement with key legislators, *AfriCenter* continued to provide policy engagement and communications support to various partners and projects.

The Program for Biosafety Systems (PBS) works closely with *AfriCenter* to support the institutionalization and full implementation of functional biosafety regulatory frameworks in PBS's six focus countries. As part of this initiative, high impact activities were conducted. The activities include the second Agri-biotech and Biosafety Communication Symposium (ABBC2017) in Uganda, which was attended by 100 delegates from 22 countries who play a key contributory role in enhancing biosafety communications across the region. ABBC2017 was co-organized with a host of partners including UBIC, African Biosafety Network of Expertise (ABNE), COMESA, among others.

OFAB-Kenya, which is hosted by *AfriCenter*, was invited by Kenya's Ministry of Industrialization, Trade and Cooperatives, to offer communication and outreach support to the National Taskforce for Bt cotton Commercialization.

AfriCenter also assisted the VIRCA Plus product development team to document and effectively communicate the project's progress. The Center supported Common Market for Eastern and Southern Africa (COMESA) through regional media and social media influencers training workshops. The Center has initiated efforts to set up a regional network of Policy Reform Advocates that will champion the technology in local policy circles in addition to the annual study tours.

With the progress of research and policies in some countries in Africa, the Center remains optimistic that African farmers and consumers will reap the benefits of biotech crops in the near future.



Partners and Donors

- African Agricultural Technology Foundation (AATF)
- African Biosafety Network of Expertise (ABNE)
- Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA) of COMESA
- Biosciences eastern and central Africa (BeCA-ILRI Hub)
- Cornell Alliance for Science
- Cornell University – Feed the Future
- CropLife Asia
- CropLife International
- Department of Agriculture, Philippines
- Donald Danforth Plant Science Center
- J.R. Simplot Company
- Michigan State University (MSU)
- Ministry of Industrialization and Enterprise Development, Kenya
- National Agriculture Research Organization, Uganda
- National Commission for Science, Technology and Innovation (NACOSTI), Kenya
- NextGen Cassava
- Program for Biosafety Systems of International Food Policy Research Institute (IFPRI)
- SEAMEO SEARCA, Philippines
- United States Department of Agriculture (USDA)
- University of the Philippines Los Baños Foundation, Inc. (UPLBFI), Philippines



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