



ISAAA *in 2016*





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 technology on crop biotechnology. 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 such issues as biosafety and food safety; impact assessment, and science communication.

2016

Year in review

In 2016, the U.S. National Academies of Sciences, Engineering, and Medicine released a report concluding that biotech crops are no different to conventionally bred crops in terms of risks to human health and the environment. This was followed by the declaration of more than 100 Nobel Laureates, together with other scientists, calling upon biotech critics to cease and desist opposition to GM crops specifically for Golden Rice, and for governments around the world to reject campaigns against biotech crops. The National Academies report and the Nobel Laureates' action delivered a strong, clear, and resounding message to the world that biotechnology is safe and vital in combating the immense problems of the society: hunger, malnutrition, poverty, and climate change. For 25 years, ISAAA has been a part of the battle against these problems, as well as in addressing the claims of critics by delivering fact-based information through discourses and various media forms. This report summarizes the efforts of ISAAA in 2016 to bring the benefits of biotechnology to the world, especially in the developing nations.

Message from the *Global Coordinator*

Dr. Randy A. Hautea



The past two decades of biotech crop commercialization is a long-term proof that biotechnology provides massive benefits worldwide. Eighteen million farmers who planted biotech seeds are living testimonies that biotechnology is worth the support in the scientific, political, and social battlegrounds. The 100-fold and rapid increase in biotech crop adoption from 1.7 million hectares in 1996 to 179.7 million hectares in 2015 is a concrete evidence that biotechnology is a very useful instrument in the agricultural toolbox.

For those 20 years of breakthroughs, ISAAA has been on the sidelines of history. For 25 years, ISAAA consistently executed initiatives that would help countries, especially in the developing world, achieve sustainable development through biotech crop commercialization. With

programs on knowledge sharing, technology development support, and facilitating consensus on biotechnology, ISAAA worked as a conveyor of change in different sectors of the society.

Though the knowledge sharing network and partnerships, evidence-based information on biotechnology were disseminated to a significant portion of the population that helped change attitudes towards biotechnology. From being fearful towards the technology, many individuals engaged by ISAAA have signified a clearer view of the importance of biotechnology.

ISAAA's annual report on biotech crop adoption continued to be the number one source of data of scientists and journalists. It was cited in major reports of scientific agencies such as the U.S. National Academy of Sciences, Engineering, and Medicine; The Royal Society; USDA Economic Research Service; PG Economics; and several news and scholarly articles.

ISAAA also served as an advocate of development, particularly in Asia and Africa, where technologies such as biotechnology are necessary to feed more poor families and enable them to improve their economic status. Bangladesh is the best example of a developing nation that embraced technology to advance the lives of their people. Though they were not the first to develop a biotech food crop, they ended up to be the first developing country to commercialize a biotech food crop in Asia. Their success is rooted in their strong political will, and public's outstanding trust in their scientists. They just proved that a good technology cannot be stopped because all outstanding innovations rise out to bring positive change in the lives of many. Several activities of ISAAA focused on building consensus towards biotechnology. Polarized views

towards a technology often lead to confusion, and thus ISAAA worked on unifying the voices of each stakeholder groups. In Africa, ISAAA worked with several policy makers in different levels and areas, to inform them about the benefits of commercializing biotech crops. With the new found knowledge and understanding towards biotech crops, they expressed their support for the technology.

For the past four years, ISAAA was challenged to fight for Bt eggplant development in the Philippines. In 2016, it has finally seen a green light when the Philippine high court reversed its ruling and released a decision in favor of Bt eggplant. The scientific community, together with the farmers, is looking forward to the commercialization of Bt eggplant in the next few years.

ISAAA will continue to strive towards change in regulations favorable for biotechnology; change in scientists' communication schemes to make them more influential to the public; change in the farmers' agriculture system and income to lessen hazards for their health and the environment; and finally change in public perception towards biotechnology. When all these changes happen, biotechnology will achieve its role of using "life" to change lives.

ISAAA will expand its efforts to help biotechnology gain ground in more countries and work towards achieving sustainable development amidst climate change. This is translated as more hungry mouths fed, better health, conserved biodiversity, and peace of mind not just for farmers, but for all stakeholders.

Milestones



ISAAA released a two-decade account of biotech crop commercialization in *Brief 51: 20th Anniversary (1996 to 2015) of the Global Commercialization of Biotech Crops and Biotech Crop Highlights in 2015*, and served as top source of information on GM crop hectareage per country, adoption trends, benefits, and future prospects. The Brief was repacked in different media formats to maximize reach and suit the preferences of various stakeholders.



The ISAAA report was featured in 2,775 news reports released in 57 languages in 108 countries worldwide. The report, mentioned in 15,369 social media posts, had a total media impressions of 4.4 billion media impressions.



ISAAA Brief 51 was successfully launched in 9 Asian and 9 African countries, through the efforts of the ISAAA global information network and partners.



Over 21,000 subscribers worldwide became knowledge sharing partners as they receive and share weekly news on agri-biotech through the *Crop Biotech Update*. A new section on New Breeding Technologies was added to the newsletter.



New publications, infographics, and videos on biotech crop adoption, marine biotechnology, anti-allergy biotech crops, and event approvals were developed and distributed.



Representatives from 11 biotech information network and partners convened in Malaysia to present milestones and share best practices in biotech communication.



ISAAA actively participated in organizing five public consultations on the drafting of the new biotech and biosafety regulations in the Philippines.



Institutions involved in biotech advocacy were equipped with knowledge on social media campaigns for science through a workshop.



Media practitioners were trained on science-based reporting to deliver accurate accounts on biotech in newspapers and social media platforms.



Farmer leaders from the Philippines attended a study tour to Bt brinjal fields in Bangladesh to witness the success of the biotech crop in helping farmers lessen pesticide use and increase income.



ISAAA voiced out the importance of biotechnology in conserving biodiversity through delivery of statements in the UN Biodiversity Conference held in Cancun, Mexico.



Scientists in Africa were trained to use effective science communication strategies through highly participative approach.



Exhibitions, panel discussions, experience-sharing sessions in various events engaged several African stakeholders to learn more about biotechnology.



African policy makers were equipped with the necessary know-how about the importance and impact of biotechnology.



We feed the world with
KNOWLEDGE

For the past 16 years, ISAAA has been a key player in the knowledge sharing arena of crop biotechnology. The ISAAA *Global Knowledge Center on Crop Biotechnology* (KC) was a brainchild of senior policy makers in Southeast Asia, which was further fortified by a group of international experts, and finally executed by an information network. KC has then evolved to be a model that facilitates biotech communication and engagement among different stakeholders of the technology. This leads to collegial interaction with transparent dialogue, forming a consensus on crop biotechnology.

Biotech crop adoption highlights

ISAAA is the go-to source of information on the global biotech crop adoption every year since 1996, when the first biotech crop was commercialized. After 20 years, ISAAA released the *20th Anniversary (1996 to 2015) of the Global Commercialization of Biotech Crops and Biotech Crop Highlights in 2015* (ISAAA Brief 51), presenting the achievements and challenges in biotech crop adoption since 1996. Global efforts to address the challenges in hunger and malnutrition were also discussed in the report. Essays on progress and promise of biotechnology supplemented the report in celebration of the 20 years of biotech crop commercialization.



18 MILLION FARMERS
IN **28** COUNTRIES PLANTED

179.7 MILLION HECTARES BIOTECH CROPS

FASTEST ADOPTED CROP TECHNOLOGY IN RECENT TIMES

2 BILLION HECTARES OF BIOTECH CROPS PLANTED IN ~28 COUNTRIES SINCE 1996



The ISAAA report was mentioned in



2,775
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108
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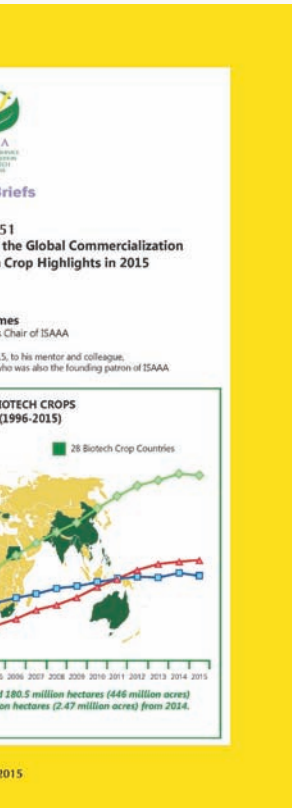


57
languages

and reached

4.4 billion
media impressions*

*estimated number of persons who were informed about the report



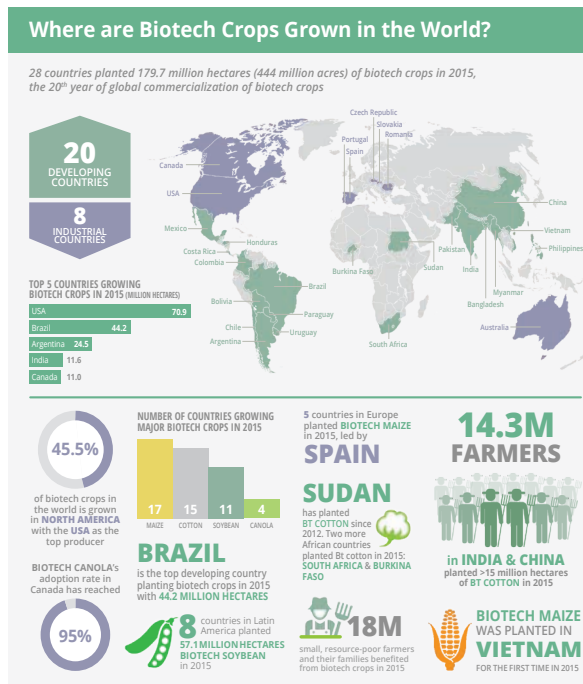
Crop biotech communication resources

KC consistently develops new materials on crop biotechnology to sustain knowledge sharing efforts as well as public interest on the topic. For 2016, KC focused on new materials optimized for online use and distribution to maximize reach.

ISAAA Brief 51 was repackaged in different types of publications to highlight specific points and capture a diversity of audiences.

The highlights of ISAAA Brief 51 were summarized in ten key points which were presented in two formats: the full text **Top Ten Facts about Biotech/GM Crops in their First 20 Years, 1996 to 2015** and the highly visual booklet titled **Beyond Promises: Top 10 Facts about Biotech Crops in their First 20 Years, 1996 to 2015**.

Information on biotech crop commercialization in developing countries were summarized into one- to two-page info- sheets called **Biotech Country Facts and Trends**. Hectareage, approvals, and other important



milestones of biotech crops in 15 developing countries were highlighted in this publication. Aside from the infosheets, downloadable slides are also available in the ISAAA website.

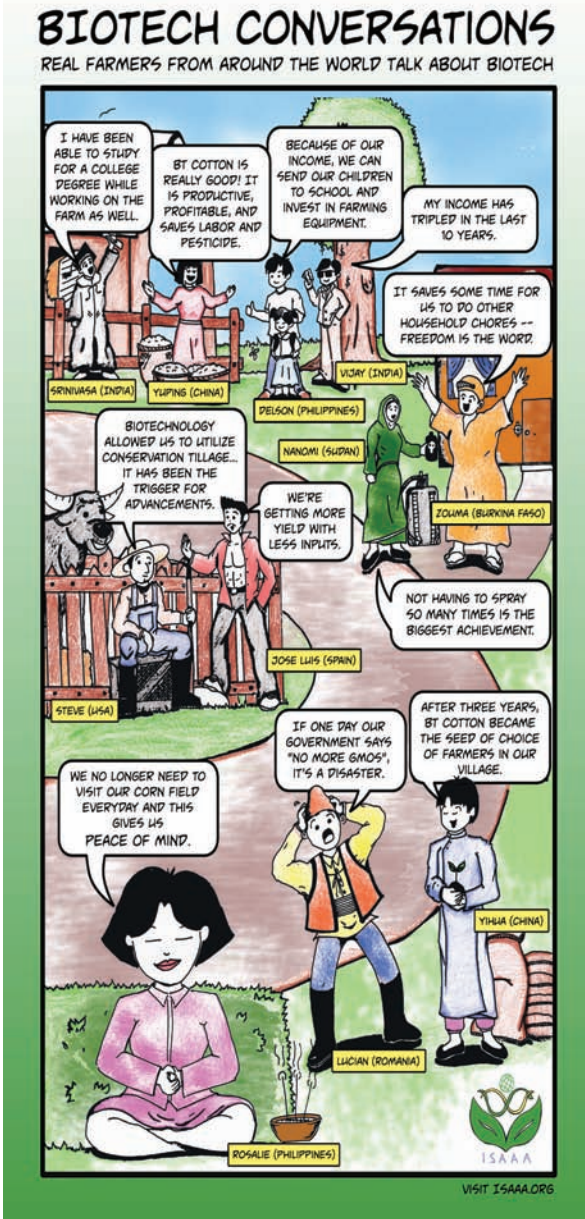
Biotech Crop Annual Update and **Biotech Trait Annual Update** provide figures and trends about major biotech crops and traits, respectively. All data are based on ISAAA Brief 51.

Biotech Crop Highlights in 2015 details the key points of ISAAA Brief 51 including global area of biotech crops per year, distribution of biotech crops in industrial and developing countries, and more. All of these information were packaged in a 12-page document called **Pocket K** (*Pockets of Knowledge*) optimized for mobile reading and easy sharing.

Other *Pocket Ks* released in 2015 include **Marine Biotechnology** and **Anti-allergy Biotech Crops**. *Marine Biotechnology* encourages readers to explore the world underneath the waters with the perspective of biotechnology. It presents different applications of biotechnology to

harness the potential of the marine environment for human benefit and fundamental biological progress. *Anti-allergy Biotech Crops* discusses how GM crops are tested for allergens and how allergens are removed or decreased in food crops through biotechnology. Previously published *Pocket Ks* were also updated with new information about biotech adoption and developments.

New infographics were also released and shared through the social media. The infographic titled ***Where are Biotech Crops Grown in the World?*** illustrates which countries are planting biotech crops and the important milestones of developing countries such as Brazil, Spain, Sudan, India, and China. ***Approved Transgenic Plant Events, 1992-2016*** compares the number of GM plant events of crops, trees, fruits, and ornamentals. The infographic on the ***Contribution of Biotech crops to Sustainability*** was also updated based on the latest ISAAA report and PG Economic's report on global socio-economic and environmental impacts of GM crops. A one-page cartoon titled ***Biotech Conversations*** highlights real farmers and their statements on the benefits of planting biotech crops.



Key information in the ISAAA Brief 51 were presented in a video titled ***Biotech Crops Highlights in 2015***. This was shared by ISAAA and other organizations in social media. The new videos in the ISAAA video series called ***Voices and Views*** were also published in the website and in Youtube. Topics covered include ***Issues and Challenges in Crop Biotechnology, Addressing Biotech Critics, Benefits of Countries from Adopting and Importing GM Crops, and Potential Benefits from Adopting GM Crops.***



www.isaaa.org

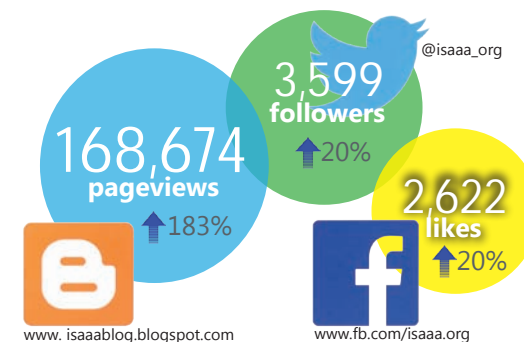
The ISAAA website is the gateway to ISAAA publications, *Crop Biotech Update*, GM Approval Database, ISAAA Blog, videos, and other information sources on agricultural biotechnology.

Crop Biotech Update is a weekly electronic newsletter that summarizes global news and research highlights on biotechnology which have implications for developing countries. It also comes with a biweekly *Biofuels Supplement*. A special section on new breeding technologies was added in 2016 to underline the advancements in plant biotechnology using cisgenesis, CRISPR/Cas9, Zinc Finger Nuclease Technology, synthetic genomics, and other techniques that overcome the limitations of conventional breeding and recombinant DNA technology.

Blog post titled *Hope for the Harvest* highlights the role of farmers and scientists on the happenings in Bt eggplant research and regulation in the Philippines. Other blog posts were about the media impressions and global launches of the ISAAA report.

The image displays two screenshots of the ISAAA website. The top screenshot shows the homepage with navigation menus and a featured article titled 'Global Status of Commercialized Biotech/GM Crops: 2015'. Overlaid on this screenshot are statistics: 153,858 web visits, 539,614 page views, and 76,670 unique visitors. The bottom screenshot shows a news article titled 'Global Ban on GM Crops to Raise Food Prices, Add A Billion Tons of CO2 to Atmosphere'. Overlaid on this screenshot is a statistic: 21,945 subscribers. At the bottom of the page, there is a 'GM Approval Database' section with a search filter and statistics: 105 food, 79 feed, and 41 cultivation.

The social media campaign #ISAAAReport2015 reached 176.1 million media impressions worldwide, which is the highest reach of ISAAA report through social media.



ISAAA documents the approval of GM crop events worldwide online in the **GM Approval Database**. A total 3,784 approvals were recorded in the database, wherein 225 events were approved in 2016.

Researchers worldwide use the GM Approval Database as important source of information on biotech crop approvals. Aside from the event approval details, documents and links to regulatory and biosafety information are also available for free.

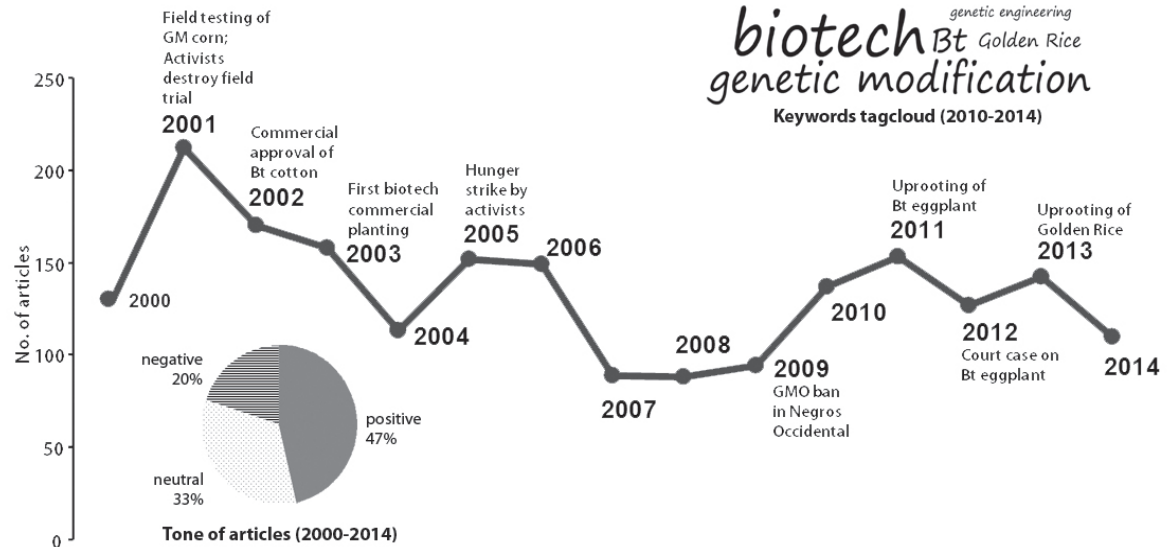
Communication research

A 10-year study of media reportage on biotech in the Philippines (2000-2009) was completed in 2011 to give an empirical perspective on media's role in setting the agenda on the technology. A follow-up study was initiated in 2015 and 2016 to cover a 15-year period (2000-2014).

Results showed that most of the biotech articles published in the major Philippine newspapers were focused on local happenings, and were placed in dedicated sections of the newspaper such as agriculture, science and technology, and business. The number of positive articles increased from 41% in the first decade to 57% in 2010-2014. National government agencies were consistently cited as main source of information for both time periods.

Biotechnology or biotech was the main keyword used since 2000. In the recent five years (2010-2014) of monitoring, less negative keywords were used in the articles; thus the decline in the use of fear appeal.

Article counts and significant events (2000-2014)



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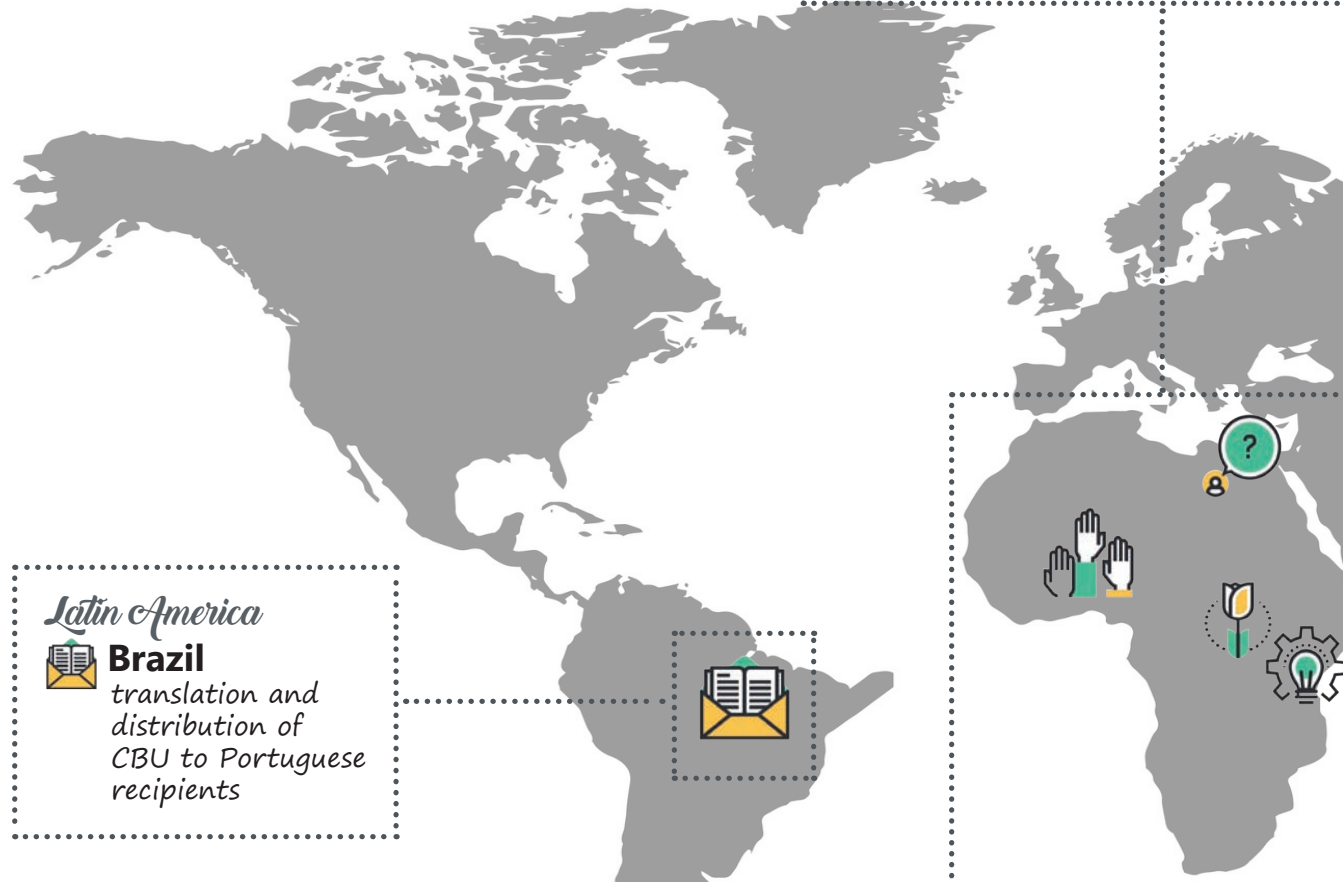
The number of articles framed towards social progress also increased significantly over the last five years (2010-2014), indicating a more positive discussion of biotech in the media. These results show a gradual progression of editorial perspective in the Philippine newspapers towards modern biotechnology.

A scholarly article about the study has been accepted for internal review by a scientific journal.

Networking and capacity building

The ISAAA network of Biotechnology Information Centers (BICs) remains at the frontline in communicating crop biotechnology through an assortment of interpersonal communication modes such as networking, workshops, seminars, study tours, and dialogues.

Aside from their individual thrusts and activities, the BICs contribute in sharing the latest news on biotech in their respective countries through the Crop Biotech Update; gather more members for the CBU mailing list; and translate biotech resources developed by ISAAA into their own local key languages. Some of the BICs also helped in disseminating the ISAAA report on biotech crop adoption by conducting seminars and media launches.



Technology Day
on with
play on



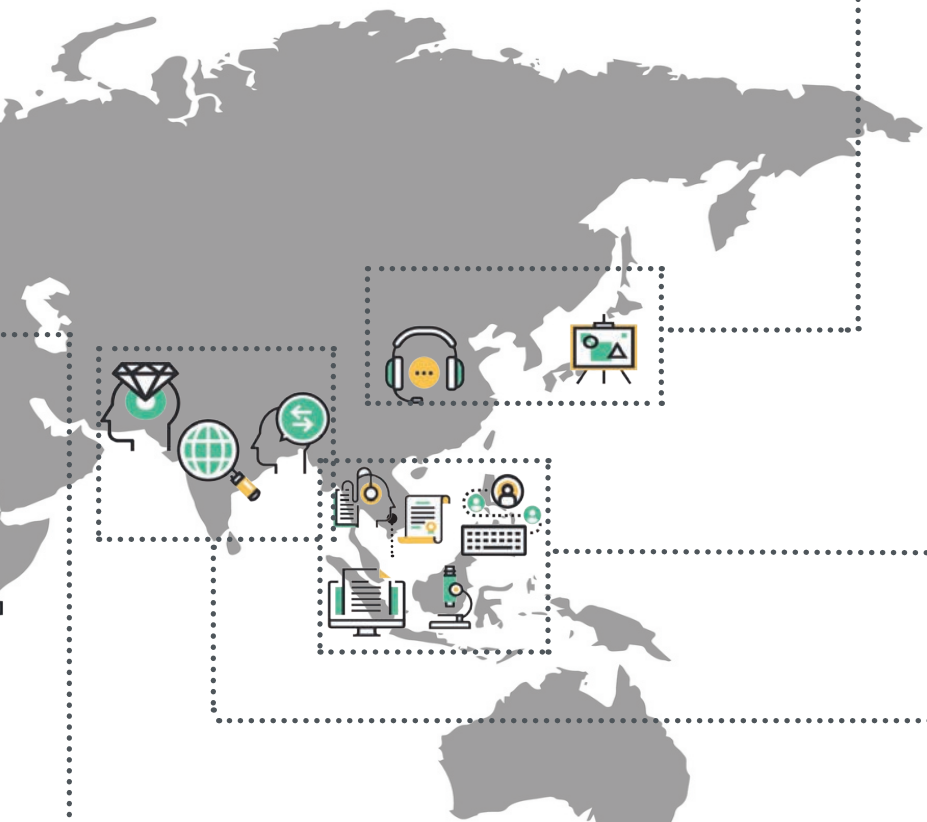
Uganda

agri boot camp
for Miss Uganda
contestants



Kenya

public fora on
agri-biotech



East Asia



China

agri-biotech
media
conferences



Japan

biotech cartoon
contest

Southeast Asia



Thailand

farmers' workshop
on biotech



Malaysia

science newspaper,
The Petri Dish



Vietnam

biotech crop news
updates



Indonesia

conference on life
sciences and biotech



Philippines

regional briefing on
new biotech regulations

South Asia



Bangladesh

hosting Filipino farmers in
study tour to Bt brinjal farms



India

study tour of African delegates
to Bt cotton farms



Pakistan

biotech internship program for
youth



We strengthen skills in
ASIA



The initiatives of ISAAA *SEAsiaCenter* are focused on technology development support, capacity building on biotech regulation, science communication, and public information and outreach.

Support to Bt eggplant development

ISAAA continues to support the Bt eggplant project. Bt eggplant is a public-sector product developed to eliminate pest damage, reduce pesticides, and increase income of farmers. The Bt eggplant project is led by the University of the Philippines Los Baños - Institute of Plant Breeding (UPLB-IPB).

In 2013, the Philippine Court of Appeals decided to stop the field trials of Bt eggplant in response to the Writ of Kalikasan case filed by biotech critics. Research activities were then focused on the development of open-pollinated and hybrid varieties of non-Bt eggplant counterparts. In 2015, the Supreme Court upheld CA's decision to stop the trials. However, in July 2016, SC reversed its decision and stated that the Bt eggplant proponents neither went beyond the field-testing phase nor distributed the product commercially. Thus, "any future threat to the right herein of the respondents or the public in general to a healthful and balanced ecology is therefore more imagined than real."

Thus, "any future threat to the right herein of the respondents or the public in general to a healthful and balanced ecology is therefore more imagined than real."

With the positive turn of events, the Bt eggplant developers are expecting a favorable outcome for the crop. They are currently completing the Bt eggplant regulatory dossier for application for commercial release and propagation.



Participation in international biodiversity conference

Pre-conference Activities

ISAAA, in partnership with the Public Research and Regulation Initiative (PRRI), Malaysian Agriculture Research and Development Institute (MARDI), Malaysian Biotechnology Information Centre (MABIC), and Agricultural Biotechnology Institute (ABI) of Malaysia, organized a workshop to facilitate the participation of Asian scientists and other stakeholders in the 2016 UN Biodiversity Conference. The workshop provided information and venue for discussions to country negotiators, industry and private sector representatives, and scientists from 12 Asian countries on the topics and issues that will be tackled during the MOP8 to prepare them on their country decisions and positions.

ISAAA and PRRI organized a forum to prepare the delegates prior to the conference proper. Forty five delegates composed of scientists, communicators, regulators and students from 16 countries participated in the event.

Conference Proper

ISAAA actively participated at the UN Biodiversity Conference (COP13-MOP8) in Cancun, Mexico. ISAAA delivered three statements on the effectiveness of the Cartagena Protocol on Biosafety, public awareness, and socioeconomic considerations.

ISAAA and other like-minded organizations' push for initiatives was greater than ever to counter the efforts of activist groups who wish to derail the progress of modern biotechnology. ISAAA supported delegates from Asia and Africa to add voice of support for modern biotechnology and also for them to go home to champion this cause to their agencies and government.



Discussions on biotech policies, regulations, and development

ISAAA was actively involved in initiating and organizing discourses on biotechnology, particularly on issues relating to its regulations, policies, and development.

Public Consultations

In compliance to the Philippine high court's order to set new biotech regulations, experts from the Departments of Science and Technology (DOST), Agriculture (DA), Environment and Natural Resources (DENR), Health (DOH) and the Interior and Local Government (DILG) came up with a new Joint Department Circular (JDC) on the *Rules and Regulation for the Research and Development, Handling and Use, Transboundary Movement, Release into the Environment and Management of Plant and Plant Products Derived from the Use of Modern Biotechnology*, which replaced the previous Administrative Order. ISAAA and partners disseminated the contents and implications of the JDC to all interested stakeholders through a series of public consultations in different regions of the country.

A total of five public consultations were held in Quezon City, Cagayan de Oro, and Cebu City, which were attended by 279 stakeholders. The consultations focused



on discussing the issues raised by the Supreme Court in their decision, such as lack of meaningful public participation, non-implementation of the Environmental Impact Statement (EIS) system, and no standards for risk assessment; and how the Joint Department Circular will address such issues. Comment and suggestions were noted for consideration in drafting the new set of regulations.

The Technical Working Group assigned to draft the regulations also held a workshop for the drafting of an operations manual or subsequent issuances to be used by the applicants or the concerned agencies as guide in the application for a biosafety permit of GM plants and plant products.

International Policy Symposium

ISAAA, in collaboration with the Philippine Department of Agriculture (DA), supported the attendance of DA staff in high level policy symposia organized by international organizations.

DA Biotech Program Director, Dr. Vivencio Mamaril, was supported to participate in the FAO International Symposium on the *Role of Agricultural Biotechnology in Sustainable Food System and Nutrition* held in Rome, Italy. The symposium focused on how agri-biotech can help smallholders in developing sustainable food systems and improving nutrition amidst climate change.

Capacity building

ISAAA organized capacity building activities and provided institutional support through collaborative projects with local and international organizations.

Social Media for Science

A social media workshop on biotech advocacy campaigns was organized by ISAAA and Young Professionals for Agriculture and Rural Development (YPARD Philippines) to harness the potential of social media platforms in advancing biotechnology. This was attended by staff from the DA, ISAAA, SEARCA-BIC, UP Los Baños, and other institutions involved in biotechnology advocacy. Aside from the basic social media topics, live tweeting, blogging, and making infographics were also discussed to equip the participants.

GMO Testing

Through the ISAAA-DA Biotech Program project, a staff of the Bureau of Plant Industry was supported to attend a training on a new approach in GMO testing in Jakarta, Indonesia.



Feed the Future Project

USAID, through Cornell University, provided funding support to facilitate the development, deregulation, commercialization and dissemination of Bt eggplant to farmers. This project, called *Feed the Future Eggplant Improvement Project-Philippines*, is focused on development and approval of regulatory dossier and product registration for Bt eggplant cultivation in the Philippines, as well as capacity development and communication activities.

Training-writershop for Journalists

A training-writershop for members of the DA-RFO IX Press Crops on science-based reporting on modern agricultural technologies was conducted for 25 media practitioners. After the training, several stories about biotechnology were published in major community newspapers in Davao. Another training for farmer leaders and traders was conducted to hone their skills in delivering stories to media about biotechnology issues.

Public outreach

Several activities were implemented to build alliances and foster knowledge, understanding, and acceptance of biotech crops, particularly Bt eggplant.

Philippines-Bangladesh Dialogues

ISAAA, in partnership with Bangladesh Agricultural Research Institute (BARI), supported Filipino farmer leaders to join in a study visit to Bt brinjal farms in Bangladesh. The Filipino farmers learned about the biotech regulations in Bangladesh, Bt brinjal R&D, and farmers' experiences in planting Bt brinjal.

Two scientists from Bangladesh involved in the Bt brinjal research, had a study visit in the Philippines. They had dialogues with scientists of UPLB-IPB,

who were involved in the research and development of Bt eggplant. They also shared knowledge about Bt brinjal during a seminar on global adoption of biotech crops attended by government officials, professors, private industry representatives, researchers, and journalists.

Science and Technology on Radio

Discussions on biotech and other related sciences continue on-air through DZRB Radyo ng Bayan's "Radyo Teknolohiya" in 738 kHz AM station aired in all Philippine



provinces. Topics discussed include the Supreme Court's decision on Bt eggplant trials, new biotech regulations, benefits of biotech crops, and biotech communication initiatives.

Philippine National Biotech Week

As part of the 12th Philippine National Biotechnology Week (NBW 2016), a three-day boot camp was organized to expose students from different schools to agri-biotechnology. Lectures on the agricultural landscape in Southeast Asia, agriculture offerings in UPLB, biotechnology applications in crops, livestock, and fisheries; and hands on exercises on DNA extraction were conducted. The participants also visited the International Rice Research Institute and UPLB's National Institute of Molecular Biology and Biotechnology.

ISAAA also joined the NBW 2016 exhibits showcasing biotech information resources such as publications and videos.

The bag design contest titled *Tote-ally Biotech* aimed to encourage students to know more about biotechnology and apply their learnings in creatively crafted designs for cloth bags.



A group of seven people, including six women and one man, are standing in a lush green cornfield. They are dressed in professional attire, such as blouses, dresses, and suits. The man on the right is pointing towards a corn plant. The background shows a clear blue sky with some light clouds. The overall scene suggests a professional or educational visit to an agricultural field.

We unite voices in
AFRICA

The ISAAA *AfriCenter* seeks to intensify partnerships with different stakeholders in the region to harmonize perspectives on biotechnology. In 2016, *AfriCenter* focused on the implementation of key activities under the thematic areas of knowledge sharing, policy advocacy, capacity strengthening in science communication, media engagement, and grassroots mobilization.

Knowledge sharing

For the first time, *AfriCenter* held a virtual launch of the ISAAA Brief 51. Journalists from Burkina Faso, Kenya, Mozambique, Nigeria, Senegal, Tanzania, Togo, Uganda and Zimbabwe actively participated during the event that reached over 5.3 million media impressions. On-site launches were also held in 9 countries in Africa including Burkina Faso, Malawi, Ghana, Tanzania, Kenya, Ethiopia, Uganda, Egypt, and South Africa reaching over 64 million media impressions.

Copies of the ISAAA Brief 51 and derivatives were distributed to African stakeholders during different events to disseminate updated information on biotech adoption and benefits all over the world.

A table-for-twenty discussion was also held in the Brief 51 launch in Kenya. Topics discussed include: why Kenya has missed the opportunity to benefit from agricultural biotechnology 20 years after commercialization of the first biotech crops; how to address challenges that hinder Kenya from commercializing biotech crops; and how Kenya can

reposition into developing and acquiring new technologies that will address her unique challenges.



Initiatives on biotech and biosafety awareness

Exhibitions

Exhibitions were set up during the Science Week of the National Commission for Science Technology and Innovation (NACOSTI); Agri-Business Trade Fair at Kenya Agricultural and Livestock Research Organization (KALRO); Field Day in Kirinyaga County by Integrated Community Organization for Sustainable Empowerment and Education for Development; agri trade fair organized by Royal Media Services, in Kirinyaga County, Central Kenya; and the 3rd Annual Devolution Conference in Meru County, Eastern Kenya. IEC materials were distributed during these events attended by various stakeholders.

Panel discussions and theater play

Awareness on agri-biotech and biosafety were intensified through panel discussions in various partnership events including the Science Week of NACOSTI. *AfriCenter* Director, Dr. Margaret Karembu, was a panel discussant on GM crops for food security and sustainable crop production. *AfriCenter* facilitated a theatre production at Kenyatta International Convention Center that aimed to demystify GM crops. Another panel discussion was held during

the 10th Annual Decolonizing the Spirit conference at Embu University College. Discussions were on whether Kenya and Africa at large should entertain an EU report urging G7 members not to support GMO crops in Africa—a form of neo-colonialism and risk making the continent food insecure year-after-year. Panelists highlighted the status of agri-biotechnology and biosafety globally and regionally, emphasizing on safety of GM crops and food.

Field visit

A study visit to confined field trials of Bt maize was organized for regulators through the Open Forum on Agricultural Biotechnology in Africa (OFAB) program and in collaboration with KALRO, International Maize and Wheat Improvement, and African Agricultural Technology Foundation. The Bt maize under trial was developed by scientists of Water Efficient Maize for Africa project and has traits for resistance to African maize stem borer and drought tolerance.

Sharing experiences

AfriCenter shared experience and lessons

on the passing of the Biosafety Act process in Kenya at Uganda Biotechnology and Biosafety Consortium strategy meeting. Dr. Karembu discussed the key strategies that were used by stakeholders to move the process towards the passing of the biosafety bill by the Kenyan parliament.



Delegates from Kenya and Malawi who had participated in a seeing-is-believing study tour on Bt cotton in India shared their experiences and lessons learned in a workshop. Topics include Bt cotton research and commercialization, the high rate of Bt cotton adoption by farmers in India and the associated benefits, as well as India's regulatory framework and how the public participates in biosafety decision making.

Capacity building on science communication

AfriCenter conducted various capacity building activities on science communication for different stakeholders across Africa. The Center devised a common interactive scheme to foster participation. A total of 12 communication trainings were conducted for about 400 participants on principles of effective science communication, message development, responding to challenging issues (risk communication), effective media relations, communicating science through new media and stakeholder netmapping. An overview of research and commercialization at country level and globally, practical sessions on mock media interviews and DNA extraction were also covered.



Support to VIRCA project

The Virus Resistant Cassava for Africa (VIRCA) is a collaborative project of Donald Danforth Plant Science Center, KALRO, National Agricultural Research Organization in Uganda, and the Science Foundation for Livelihoods and Development. The project aims to develop virus-resistant cassava varieties for small scale farmers. *AfriCenter* takes charge of planning and execution of communication and outreach activities in collaboration with VIRCA project teams in Kenya and Uganda.

AfriCenter reviewed and updated key internal documents including a regulators handling document and a rapid and site response plan.

The Center also organized a workshop on breeding trials management and biosafety communication to update on-site staff and VIRCA scientists on biosafety compliance, management of cassava breeding confined field trials, and how to handle challenging situations that might arise at the site.

Another workshop was conducted for

county agriculture ministers from cassava growing regions and KALRO managers to discuss VIRCA's progress and achievements. The participants visited the confined field trials site for a study tour.

AfriCenter devised a pairing program for scientists and journalists to enhance factual media reporting on biotech and biosafety in Kenya. The program became an avenue to correct misleading news stories on biotechnology.



Policy engagement

Policy makers are key stakeholders in advancing biotechnology through formulation and passing of policies, laws, and regulations. Thus, *AfriCenter* engaged various stakeholders through workshops, round table discussions, seeing-is-believing study tours, and IEC materials distribution.

A workshop on biotechnology and biosafety was conducted for Kenyan County Executive Committee members for health, environment, and agriculture. Participants expressed their support for crop biotechnology and called for lifting of the 2012 GM foods import ban. The workshop was organized in partnership with Program for Biosafety Systems (PBS) and Biosafety Appeals Board.

Two workshops for county governments were also conducted in partnership with BioAWARE, an initiative of the National Commission for Science, Technology and Innovation (NACOSTI). This was prompted by a request by the National Biosafety Authority (NBA) for public comments on an application for environmental release (open field



cultivation) of genetically engineered cotton in Kenya by Monsanto.

An awareness seminar was conducted for county executives in cotton growing counties of Kenya. Presentations on basics of agricultural biotechnology and the status of research and regulation

were delivered. A ginner discussed the status of the cotton sector in Kenya appealing to county governments to support Bt cotton. The county executives supported Bt cotton introduction, since they recognized the impact it would have in their respective counties.

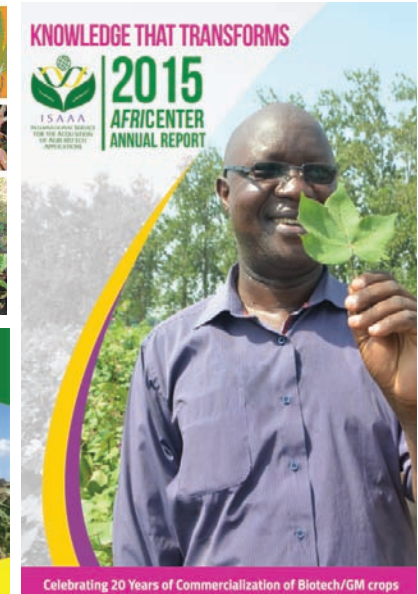
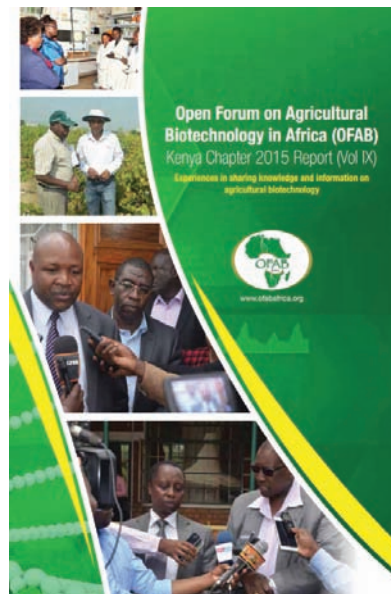
AfriCenter, together with NBA and PBS, gathered several Members of Parliament (MPs) from key parliamentary committees in Kenya for a breakfast meeting. The meeting aimed to inform the lawmakers about a proposed Natural Resources Amendment Bill, which had two contentious clauses that could negatively impact GM research in Kenya. The Bill required that field trials on GM crops and permits for material transfer agreements be subjected to parliamentary ratification. The Center engaged key parliamentarians and provided expert advice on the implications of the Bill. A key outcome was the deletion of the two clauses.

Publications development and social media engagement

AfriCenter published communication materials on biotechnology tailor-fit for African stakeholders. These include the *OFAB 2015 Annual Report – Experiences in Sharing Knowledge and Information on Agricultural Biotechnology*, *Knowledge that Transforms – ISAAA AfriCenter 2015 Annual Report*, *Top Ten Fact Series on Africa, Kenya, Burkina Faso, Sudan, and South Africa*; and a poster on *Virus Resistant Cassava for Africa*.

AfriCenter also speaks out on biotechnology issue through various social media platforms, which is echoed by numerous followers in Africa evident by significant increases in engagement figures.

AfriCenter's Facebook posts reached close to 200,000 users in 2016 alone, whereas the @afri_isaaa Twitter handle grew from 1,593 followers in 2015, to over 2,500 followers in 2016. On the other hand, OFAB Kenya's Facebook posts reached over 120,000 users in 2016, and the @OFABKenya Twitter handle garnered close to 8,000 tweet impressions.



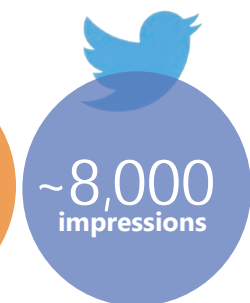
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