



ISAAA
in
2015



International Service for the Acquisition of Agri-biotech Applications (ISAAA) is a not-for-profit 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 development support.

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.

2015: Year in review

2015 has been an interesting year for the agri-biotech arena. Vietnam, one of the developing countries in Asia, finally joins the league of biotech countries by allowing farmers to cultivate biotech maize. Farmers in the Philippines, Japan, Kenya and other countries declare all-out support for biotech crops, driven by their new-found knowledge about the technology. Agricultural ministers and other high ranking government officials in India, Australia, Tanzania, and Kenya have also expressed their support for biotechnology to uplift the state of food and agriculture in their countries. Reigning Miss Uganda got her crown by being a biotech champion to her fellow youth.

Researchers have proven additional benefits of biotechnology not just in agriculture, but also to other fields. A study confirmed that biotech and traditional farming are compatible approaches in sustainable agriculture. Other studies have also confirmed that GM crops can help agrobiodiversity, is essential for climate smart

agriculture, and can eliminate food poisoning. More second generation biotech crops have been commercialized this year, including non-browning apple, low acrylamide and late blight resistant potato, high yielding eucalyptus, drought resistant soybean, virus resistant potato, and increased ear biomass maize.

The United Nations reported that there are fewer hungry people today than in early 1990s. However, this should not stop the efforts towards achieving global food security. Moreso, all efforts should be intensified.

This report summarizes the efforts and accomplishments of ISAAA for 2015 as its contribution for the global populace. We continue to feed the world with knowledge, strengthen skills, and unify voices with the hope that crop biotechnology will provide solutions to the most pressing needs of farmers, consumers, and the whole community.

Message from the Global Coordinator

Dr. Randy A. Hautea

2015 has been a banner year for ISAAA. This year marks the 19th year of biotech crops commercialization. With the rapid adoption of biotech crops in various countries, it shows that the promise of biotechnology has come to reality, benefitting 18 million farmers all over the world. This is despite the continuous opposition of a small portion of the society. To face such challenge, The Global Knowledge Center on Crop Biotechnology (KC) and the Biotechnology Information Centers (BICs) took the task of collecting expert opinions about biotechnology from people who have been involved in the technology. Their statements confirm that we are not alone in this battle. Many believe, many are hoping, that someday, biotechnology will find its way to help every hungry nation.

In Africa, political will continues to rise. With the efforts of the *AfriCenter* and other like-minded organizations, government officials are more equipped about the technology and are making informed decisions for the improvement of their

agriculture sector. In Asia, capacities are fortified to enable better use of the technology as well as improve communication and build up biosafety regulations.

Intensified knowledge sharing and crop biotechnology itself have been our weapons in this battle. Eighteen million farmers and seven billion mouths to feed are worth the fight. As long as biotechnology continues to uplift the lives of farmers and their families; as long as biotechnology delivers products that provide solution to

rampant problems of the society such as hunger, malnutrition, climate change, pollution; and as long as misinformation on biotechnology continue to loom the society, ISAAA is here to stay. We will continue to feed the world with knowledge and skills, and make the difference.

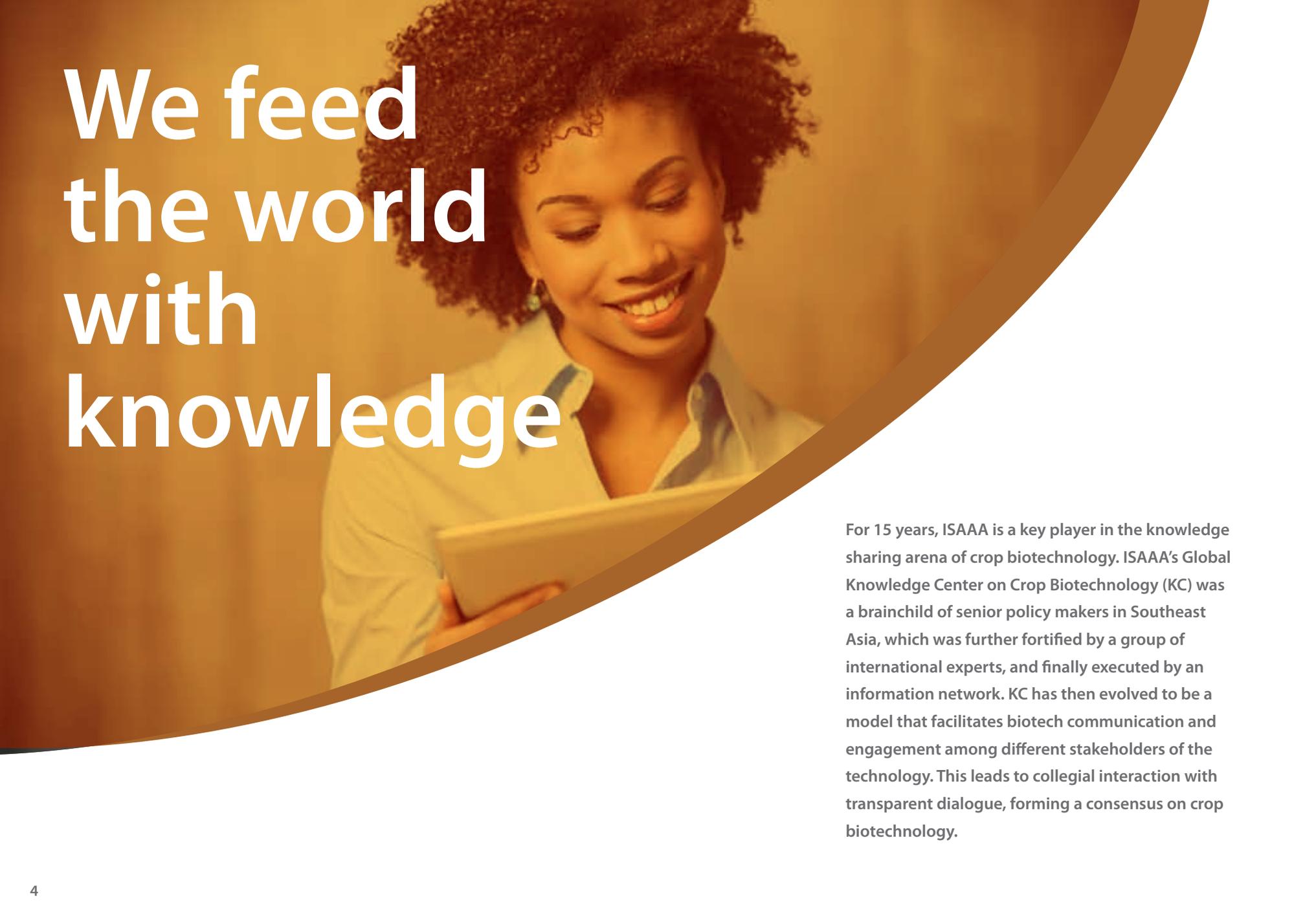




Milestones

- The Global Status of Commercialized Biotech/ GM Crops: 2014 (ISAAA Brief 49) was launched in January 2015 and served as an authoritative source of information on global updates on hectareage, adoption, benefits, and future prospects of biotech crops.
- ISAAA Brief 49 was featured in 2,754 news reports in 56 languages in 96 countries and 4,871 social media posts, reaching about 3.26 million media impressions.
- The global adoption report was successfully launched in 10 Asian countries and 18 African countries, with the support of ISAAA's global biotech information network and partners.

- Over 20,000 subscribers have been updated about the latest news and research highlights on agri-biotech through the *Crop Biotech Update*. In addition, the RSS feed has been accessed as much as 89,000 times in a month.
- New publications were developed focusing on biotech crop adoption and uptake pathways, viewpoints of biotech experts and stakeholders, Bt eggplant, GM trees, and coexistence of biotech and non-biotech crops.
- Twenty nine representatives of the ISAAA biotech information network from 12 countries convened in Nairobi, Kenya in April to present their best practices and develop new strategies for effective biotech communication.
- A research article on the trends in global approvals of GM crops was published featuring 23 years of approval data from the GM Approval Database.
- *AfriCenter* and partners hosted the first ever International Conference on Agri-biotechnology and Biosafety Communications (ABBC2015) which was attended by over 150 delegates from 30 countries.
- Seeing-is-believing study tours in biotech crop fields were held in South Africa and India to enlighten African stakeholders about the real benefits of biotechnology.
- *AfriCenter* became instrumental in involving policy makers to speak up about the potential advantages of lifting the GM importation ban in Kenya.
- Public dialogues on Bt eggplant equipped Filipino farmers with information about the science behind the Bt technology and the socio-economic benefits of Bt eggplant adoption. This prompted them to declare support to the commercial planting of Bt eggplant in the Philippines.
- ISAAA and partners organized a workshop on the latest innovations in plant biotech and lessons in science communication attended by over 100 participants from 17 APEC member economies and 2 non-APEC economies.

A woman with curly hair, wearing a light blue shirt, is smiling and looking down at a tablet device she is holding. The background is a warm, golden-brown color with a large, curved, darker brown shape on the right side.

We feed the world with knowledge

For 15 years, ISAAA is a key player in the knowledge sharing arena of crop biotechnology. ISAAA's 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.

Global biotech adoption report

ISAAA is one of the most sought after sources of information on global adoption of biotech crops. In 2015, ISAAA released the *Global Status of Commercialized Biotech/GM Crops: 2014* (ISAAA Brief 49) featuring global updates on hectareage, adoption, benefits gained, and future prospects. The report also provides possible solutions on the looming problems of increasing population and dwindling natural resources through the help of biotechnology.

Mentioned in
2,791 news reports
 in
56 languages
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 reaching
3.26 billion media impressions

Launched in
10 Asian countries
 and
18 African countries

(As of December 2015)

Brief 49 is repackaged into different formats to highlight specific topics and reach various audiences.



Crop biotech communication resources



Resources were developed to equip the public with science-based information on crop biotechnology.

Adoption and Uptake Pathways of GM/Biotech Crops by Small-scale Resource-poor Farmers in China, India, and the Philippines (ISAAA Brief 48) shows how modern biotechnology has transformed farming into a profession that harvests agronomic and socio-cultural benefits beyond promise. It embodies stories of how biotech crops, particularly Bt cotton in China and India and biotech corn in the Philippines are changing the lives of small farmers, their families, communities, and even nations. This is based on a research funded by the John Templeton Foundation, and conducted by ISAAA, Chinese Academy of Sciences, Indian Society for Cotton Improvement, and the University of the Philippines Los Baños.

Voices and Views: Why Biotech? (ISAAA Brief 50) is a collection of personal essays about 32 individuals from all over the world who have followed the

development of biotechnology and are convinced that it has a significant role in improving the quality of life. ISAAA's biotech information network contributed to the Brief to represent stakeholders from Asia, Africa, North America, and Europe. The Brief was launched during the International Conference on Agri-biotechnology and Biosafety Communications (ABBC2015) held in April in Nairobi, Kenya. A visual monograph titled *Quotable Quotes: Why Biotech?* was also released to highlight significant statements from Brief 50.

Common myths about agri-biotechnology were addressed using evidence-based information through a publication titled *Myths and Facts about Agricultural Biotechnology*. The booklet was written by a Filipino journalist using her own perspective.



Pocket Ks on Bt eggplant, farmer adoption and uptake pathways in three Asian countries, GM trees, and coexistence of GM and non-GM crops were published in online.

50 Biotech Bites, a compilation of 50 topics from *Pocket Ks* was also published and printed as a book. Copies of the book were distributed to selected public secondary schools with limited internet access.

Two chapters were also contributed by ISAAA for two publications of Biosciences for Farming in Africa (B4FA) based in Cambridge, United Kingdom.

A compilation of interviews of experts from different countries was released as a short video titled *Voices and Views: Issues and Challenges in Biotech*. The experts discuss the issues they face in their countries concerning biotechnology, and the solutions that can be implemented to achieve public acceptance of the technology.

ISAAA in the web

www.isaaa.org is the gateway to ISAAA publications, GM Approval Database, *Crop Biotech Update*, ISAAA Blog, and other information resources.

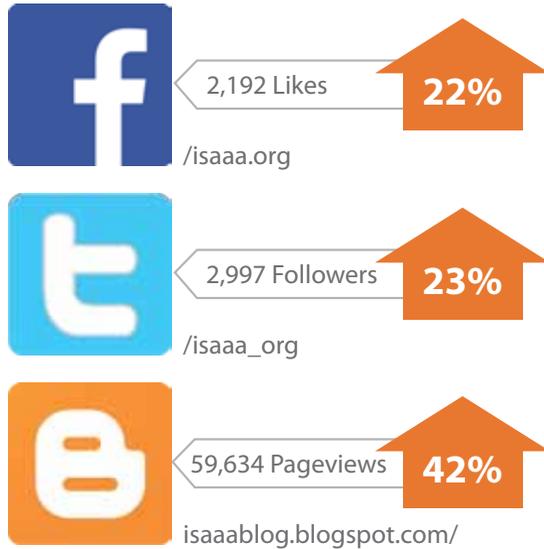
The weekly newsletter on agri-biotechnology, *Crop Biotech Update*, summarizes global news and research highlights on agri-biotechnology with implications for developing countries. It also comes with a biweekly *Biofuels Supplement*.



60,800 Average monthly unique visitors

132,153 Average monthly visits

545,451 Average monthly Page Views



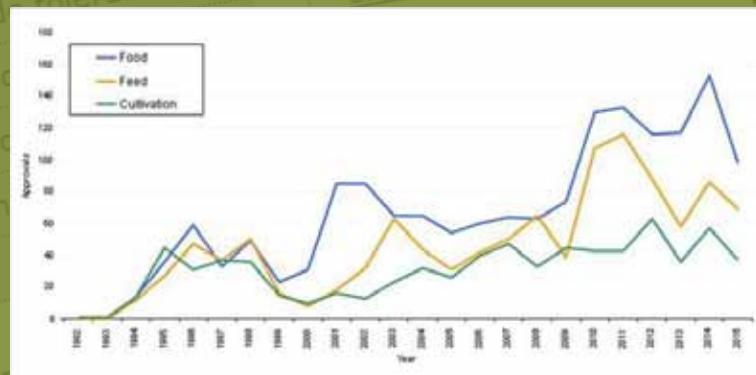
The social media campaign using the hashtags **#ISAAAreport2014** and **#biotechcrops2014** reached 84.4 million impressions worldwide.

ISAAA provides the up-to-date approval data on GM crop events through the GM Approval Database. The database contains 382 events of 29 crops approved in 40 countries.

GM Approval Database Updates in 2015

SUMMARY	2015	Total
Number of Countries Added	0	40
Number of Crops Added	2	29
Total Food Approvals	113	1,622
Total Feed Approvals	79	1,115
Total Cultivation Approvals	47	753

A research article on the *Trends in Global Approvals of Biotech Crops (1992-2014)* was published in *GM Crops and Food* based on the events approval data in the GM Approval Database. Trends on the growth of the GM crops industry for 23 years and the factors influencing approvals and their implications in GM crop adoption were discussed. The article is downloadable at <http://www.tandfonline.com/eprint/DIVcKdNfu6cU86HQx5x/full>.



Total Event Approvals (1992 - 2015)

Biotech communication research

In 2011, ISAAA completed a 10-year study of media reportage on biotech in the Philippines covering news in print from 2000-2009. This year, a follow-up study was initiated to cover 15 years of reporting (2000-2014). Preliminary results show that three major dailies continued to publish articles on biotech, mostly about dramatic episodes such as uprooting of field trials, court case against Bt eggplant, and provincial ban against cultivation of GM crops. Writers rarely used the fear appeal in framing messages compared to the early years of the study.

Networking and capacity building

The ISAAA biotech information network gathered for the annual meeting held in Nairobi, Kenya in April 2015 and hosted by *AfriCenter*. Twenty-nine representatives from 12 countries attended the meeting to present their best practices and new strategies in biotech communication. They were also trained on developing advocacies for increased access to agri-biotechnology organized by Cornell Alliance for Science.

ISAAA staff participated in various biotech events as resource speaker, moderator, or observer.



BIC Initiatives

South Asia

Bangladesh



Briefing of journalists and students about Bt brinjal

India



Meeting with parliamentarians about the new technologies in agriculture

Pakistan



Consultative workshop on the reformulation of biosafety guidelines

East Asia

China



Seminar on crop biological breeding industrialization

Southeast Asia

Indonesia



BioCamp for high school students and university debate competition

Malaysia



Science newspaper The Petri Dish with circulation of 6,000 distributed to Indonesia, Pakistan, Philippines, and the U.S.

Philippines



Public dialogues on Bt eggplant

Thailand



Science communication workshop

Vietnam



Workshop on the benefits of agri-biotech in Vietnam

Japan



Agri-biotech seminar for farmers

Africa

East and Central Africa



Seeing-is-believing tours to biotech countries

Uganda



Agri boot camp for Miss Uganda contestants

West Africa



Biotech awareness activities

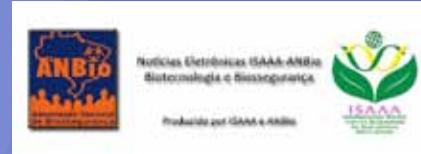
Egypt



Farmers' visit to Bt cotton field

Latin America

Brazil



Translation and distribution of Portuguese CBU



We strengthen skills in Asia

The Asia program includes technology development support, capacity building on biosafety regulation, public information and outreach, and science communication which are initiated by ISAAA SEAsiaCenter.



Public information and outreach

ISAAA supports the research and development of Bt eggplant, a biotech crop with insect resistance trait, spearheaded by scientists in the University of the Philippines Los Baños-Institute of Plant Breeding (UPLB-IPB). While the research was temporarily put on hold, following the decision of the Court of Appeals on the Writ of Kalikasan case filed against the conduct of the multi-location field trials of Bt eggplant, in 2015, activities were focused on public information and outreach about Bt eggplant. Public dialogues with farmers and other stakeholders were conducted in Camarines Sur and Isabela provinces of the Philippines, organized by SEARCA Biotech Information Center. Issues about the science, safety, and potential benefits of Bt eggplant were discussed by experts. After four public dialogues conducted in 2014 and 2015, about 700 Filipino farmers, scientists, and other agriculture stakeholders signed a declaration of support to the commercial planting of Bt eggplant. The declaration was forwarded by farmer-leader Edwin Paraluman to Dr. Segfredo Serrano, Undersecretary for Policy, Planning, Research and Development, and Regulations of the Philippine Department of Agriculture, during the Forum on the Global Alliance for Agri-biotech (GAABT) Model on Low-

level Presence and GM and Organic Farming Co-existence held on September 30, 2015 at the Iloilo Convention Center, Iloilo City, as part of the APEC activities.

On December 8, 2015, the Philippine Supreme Court issued a decision to permanently stop the field testing of Bt eggplant and also declared null and void the Department of Agriculture (DA) Administrative order no. 9, series of 2002, that regulates contained use, field testing, propagation, commercialization of GMOs in the country, until a new administrative order is developed in accordance with the law.

Biotechnology continues to rock the airwaves through “Radyo Teknolohiya”, a radio program in the Philippines that tackles developments and experiences in biotechnology and related sciences. The program airs nationwide every Friday at DZRB 738 of the Philippine Broadcasting Service.



Capacity building initiatives

A two-part workshop on Fostering the Benefits of Innovation in Plant Breeding and Science Communication was organized by ISAAA, U.S. Department of Agriculture – Foreign Agricultural Service (USDA-FAS), and U.S.-Asia-Pacific Economic Cooperation Technical Assistance to Advance Regional Integration (US-ATAARI) in June 2015 in Muntinlupa City, Philippines. Latest innovations in plant breeding and lessons on science communication were presented to APEC economy regulators. They also discussed how government policies and regulations can support biotech innovations to meet the agricultural challenges in the APEC region. As host economy, the Philippines provided funding and logistical support for the event through the Department of Agriculture. The workshop was attended by 139 participants from 17 APEC member-economies and 3 non-APEC economies.

ISAAA and partners organized the High Level Policy Dialogue on Agricultural Biotechnology (HLPDAB) for APEC member economies during the Food Security Week of APEC in Iloilo City,

Philippines. The agenda focused on the theme “Enhancing cooperation on biotechnology for improved resiliency, inclusive growth, and food security.” According to the APEC, the HLPDAB is “a recognition of the importance APEC Ministers and Leaders place on member economies’ work on the safe introduction of biotechnology products, and on obtaining public acceptance of these products.”

Graduate faculty members and extension staff of the Central Bicol State University of Agriculture (CBSUA) were trained to enhance their science communication skills through lectures and workshops held in March 2015. CBSUA is one of the collaborators of ISAAA for the conduct of multi-location field trials of Bt eggplant.

Twenty-nine researchers from different institutions in the Philippines were equipped with working knowledge and skills on IP management through a training workshop conducted in August 2015. They were equipped with knowledge on prior art search, IP disclosure, and claim drafting through lectures and hands-on activities. This activity is part of

ISAAA’s collaborative project on capacity building with the Philippine Department of Agriculture Biotechnology Program Office (DA BPO).

ISAAA also provided support for a Philippine delegate to the ASEAN Genetically Modified Food Testing Network (ASEAN GMF) in Brunei Darussalam. Recent developments, best practices, and experiences on GMO detection were discussed among ASEAN countries to enhance capabilities.



HIGH-LEVEL POLICY DIALOGUE ON AGRICULTURAL BIOTECHNOLOGY

September 30 - October 1, 2015 | Iloilo, Philippines



We unite the voices in Africa

The ISAAA *AfriCenter* seeks to intensify partnerships with different stakeholders in the region to harmonize perspectives on biotechnology. The Africa program is focused information sharing, policy advocacy, and capacity building in biosafety communication and issue management.



Information sharing initiatives

AfriCenter, together with its partners, organized the International Conference on Agri-biotechnology and Biosafety Communications (ABBC2015) in April 2015 in Nairobi, Kenya to provide a platform for exchange of experiences and best practices on biotech and biosafety communications for agricultural biotechnology stakeholders from all over the world. Over 150 delegates from 30 countries attended the two-day conference. At the end of the conference, a communiqué dubbed as “The Nairobi Declaration” was released calling on the Kenyan Government to lift the ban on GMO imports.



Seeing-is-believing study tours

A study tour to South Africa was attended by over thirty stakeholders, mostly farmers, from Kenya. The activity was organized by *AfriCenter*, together with African Agricultural Technology Foundation (AATF) and AfricaBio to promote acceptance of biotech crops and encourage farmer-driven demand to the crops by knowing their benefits. Farmers, government officials, biosafety officers, and technology developers discussed the benefits accrued by South Africa from adopting biotechnology.

African policy makers, regulators, government officials, researchers, and consumers participated in the study tour to Indian Bt cotton fields organized by *AfriCenter* in collaboration with South Asia Biotechnology Centre (SABC), Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA/ COMESA), Open Forum on Agricultural Biotechnology (OFAB), and the U.S. Department of Agriculture. The participants came from cotton growing countries of Africa, particularly Kenya, Sudan, Malawi, Ethiopia, Swaziland, and Zambia. Through the tour, the delegates witnessed the actual performance of Bt cotton in farmers’ fields. They also discussed the benefits and risks of adopting biotech crops from public and private sector representatives. Because of the newly acquired knowledge and experience, they developed confidence in biotechnology leading to further acceptance of the technology. The MPs who participated in the tour shared their learnings in an OFAB session and in a press conference in Kenya, where they also asked the government to lift the ban on GM crops.

Policy advocacy for GE maize in Kenya

In partnership with AATF and the BioAWARE initiative of the National Commission for Science, Technology, and Innovation (NACOSTI), *AfriCenter* conducted outreach activities for parliamentarians, senators, and county governments. These activities were driven by the release of notice from the National Biosafety Authority (NBA) for public comments on the application for environmental release of GE maize. The outreach activities include breakfast meeting with senators handling agriculture, education, health, trade, and finance committees; study tour of parliamentarians to various research institutions conducting studies on biotech; and meetings with country governors and agricultural executives. After the outreach activities, the policy makers wrote statements in support of application submitted to NBA.



Open discussions to lift GM importation ban in Kenya

AfriCenter continues to facilitate and coordinate the activities of the OFAB Kenya. For 2015, the key engagements were focused on efforts to lift the ban on GM imports. These activities include sensitization meeting for farmers, World Environment Day commemoration, and launch of the report on in-depth study of agricultural biotechnology by International Food Policy Research Institute (IFPRI).



Communication and outreach activities for virus resistant cassava

The Virus Resistant Cassava for Africa (VIRCA) is a collaborative project of Donald Danforth Plant Science Center, Kenya Agricultural and Livestock Research Organization (KALRO), National Agricultural Research Organization (NARO) in Uganda, and the Science Foundation for Livelihoods and Development (SCIFODE). The project aims to develop virus-resistant varieties of cassava for small scale farmers. *AfriCenter* takes charge of planning and execution of communication and outreach activities for the project such as communication workshop for scientists, pairing program for scientists and journalists, and social media training for scientists.



Confidence-building in modern biotechnology

ISAAA partners with the Brazilian Agricultural Research Corporation and Uganda-based SCIFODE to assess barriers to access, adoption, and acceptance of biotech crops in Brazil, Kenya, and Uganda. Comparative analysis of frameworks and regulatory procedures are developed to guide the adoption of biotech crops. Agricultural Innovation Marketplace funds the project. The activities conducted for the year include analysis and documentation of policies, legal, and institutional issues surrounding biotechnology; seeing-is-believing tour to Brazil by key African stakeholders; and biosafety communication training for stakeholders from Africa, Argentina, and Brazil.

Development of IEC materials

AfriCenter developed and distributed materials tailor-fit for African stakeholders. Publication of the materials was funded by Bill and Melinda Gates Foundation through OFAB.



Donors

- African Agricultural Technology Foundation (AATF)
- African Biosafety Network of Expertise (ABNE)
 - Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA), COMESA
 - Brazil-Africa Agricultural Innovation MarketPlace Program with EMBRAPA
 - BioInnovative Program, International Livestock Research Institute (ILRI)
 - Cornell Alliance for Science
 - CropLife Asia
 - CropLife International
 - Department of Agriculture, Philippines
 - Donald Danforth Plant Science Center
 - International Food Information Council Foundation (IFIC)
 - J.R. Simplot Company
 - Michigan State University
 - MONSANTO Company Ltd.
 - National Council for Science, Technology and Innovation (NACOSTI), Kenya
 - National Crops Resources Research Institute (NaCRRI), Uganda
 - Program for Biosafety Systems, International Food Policy Research Institute (IFPRI)
 - SEAMEO SEARCA, Philippines
 - U.S. Department of Agriculture
 - U.S. Department of State
 - World Food Center, UC Davis





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