2005 - 2015



A Decade of Championing Agri-biotech & Biosafety Communications in Africa



INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH APPLICATIONS

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# Vision

A food secure Africa free of hunger and poverty

# Mission

To share knowledge on agricultural biotechnology and biosafety through strategic communications and outreach for informed policy and choice

# Approach

To achieve its mission, the AfriCenter focuses on the following thematic areas:

- I. Sharing knowledge on all aspects of crop biotechnology for informed policy and choice
- 2. Strengthening capacity for effective science communication
- Engaging policy makers in order to create an enabling environment for crop biotechnology development
- 4. Forming strategic partnerships that capitalize on the comparative advantages of public and private sectors in the agri-biotech and biosafety continuum
- 5. Facilitating international representation of Africa's agri-biotech and biosafety agenda

# **Capability Statement**

ISAAA is exceptionally designed to provide communications and policy support services on all aspects of crop biotechnology and biosafety. It does not generate or own any agri-biotech products. This high degree of independence makes ISAAA's operations credible as it interfaces with various institutions and partners that serve developing countries.

ISAAA AfriCenter has a team of multidisciplinary experts who develop and implement strategic development communication programs that are well focused for maximum impact. The team provides communication and policy support services to promising projects across Africa and offers trainings on effective science communications. A number of AfriCenter staff are certified to conduct net-mappping that help in identifying relationships between and among stakeholders for effective outreach.

Further, *Afri*Center co-ordinates seeing-is-believing biotech study tours for Africa's key agribiotech stakeholders. We are often contracted by different actors to facilitate such visits for experiential learning on all aspects of agri-biotech and biosafety. Given the controversial nature of agricultural biotechnology, the Center has a rapid response mechanism to address contentious issues when they arise. To broaden its expertise and optimize performance, *Afri*Center works with a network of Associates who contribute to its mission through involvement in various programs, on a need-basis. The Associates come from reputable public and private institutions from across the globe and are drawn from various disciplines that complement the Center's areas of focus. The *Afri*Center is seen as a one-stop shop for current agribiotech and biosafety information in the continent.

# **ISAAA's Niche**

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 knowledge sharing initiatives and the transfer and delivery of proprietary biotechnology applications.

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.

ISAAA has three centers in South East Asia (SEAsiaCenter), Africa (AfriCenter), and North America (AmeriCenter). ISAAA AfriCenter was established in 1994 and has an African mandate. It is hosted by the International Livestock Research Institute, in Nairobi, Kenya.



# **List of Abbreviations**

AATF	African Agricultural Technology Foundation	KALRO	Kenya Agricultural and Livestock Research
ABNE	Africa Biosafety Network of Expertise		Organisation
ABSF	African Biotechnology Stakeholders Forum	KARI	Kenya Agricultural Research Institute
ACTS	African Center for Technology Studies	KUBICO	Kenya University Biotechnology Consortium
ASARECA	Association for Strengthening Agricultural	<b>KYBN</b> et	Kenyan Youth Biotechnology Network
	Research in Eastern and Central Africa	NACOSTI	National Commission for Science, Technology and
ASCU	Agricultural Sector Coordination Unit		Innovation
ATPS	Africa Technology and Policy Studies Network	NaCRRI	National Crop Resources Research Institute
AU	African Union	NARO	National Agricultural Research Organisation
BICs	Biotechnology Information Centers	NBA	National Biosafety Authority
BioAWARE	National Biotechnology Awareness Strategy	NEPAD	New Partnerships for Africa's Development
BIPCEA	Biosciences Innovation Policy Consortium for	OFAB	Open Forum on Agricultural Biotechnology in Africa
	Eastern Africa	PBS	Program for Biosafety Systems
CBD	Convention on Biological Diversity	PRRI	Public Research and Regulation Initiative
CEMASTEA	Center for Mathematics Science and	RABESA	Regional Approach to Biotechnology and Biosafety
	Technology in Africa		Policy in Eastern and Southern Africa
COMESA	Common Market for Eastern and Southern	RECOAB	Regional Biotechnology Journalists' Network
	Africa	SCIFODE	Science Foundation for Livelihood and Development
COP-MOP	Conference of Parties serving as the Meeting	SEI	Stockholm Environment Institute
	of Parties to the Cartagena Protocol on	ТВР	Tree Biotechnology Program
	Biosafety	тс	Tissue Culture
DNA	Deoxyribonucleic Acid	UBIC	Uganda Biosciences Information Center
EBIC	Egypt BIC	<b>UNEP-GEF</b>	United Nations Environment Programme – Global
GMOs	Genetically Modified Organisms		Environment Facility
ICOSEED	Integrated Community Organisation for	UNESCO	United Nations Educational Scientific and Cultural
	the Sustainable Empowerment and Education		Organization
	for Development	VIRCA	Virus Resistant Cassava for Africa
IFPRI	International Food Policy Research Institute	WABIC	Western Africa Biotechnology Information Center
ILRI	International Livestock Research Institute	WEMA	Water Efficient Maize for Africa

# **ISAAA** *Afri***Center** at a Glance

# **Evidence to Impact**



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### Message from ISAAA Board Chair Prof. Paul Teng



Agricultural biotechnology continues to offer great promise for increased production of quality food, feed and fiber in the world. Reports of more than a 100 fold increase in biotech crops hectarage, from 1.7 million hectares in 1996 to approximately 180 million hectares in 2015, is encouraging.

The realization that ISAAA's core mission of transferring and delivering agri-biotechnology applications to developing countries is more alive today than it was a decade ago. This gives us the impetus to soldier on. Our focus continues to be the facilitation of an enabling environment for crop biotechnology through sharing of knowledge for informed policy and choice. This is ever more important today with the increasing world population, changing climate, and rural to urban migration that has left food production to the ageing population in developing countries.

I commend all the ISAAA Centers namely the *Afri*Center, *Ameri*Center, and the *SEAsia*Center for keeping our global community fully informed on the technology's progress and regularly providing credible information through our much lauded crop biotech updates.

Throughout all our Centers, ISAAA has been advocating for a structured system of information, education and communication on agricultural biotechnology. The organization's visibility in the agri-biotech global space is due to its well planned and executed outreach strategy. To date, no other organization has set up a wide crop biotech communication network as ISAAA.

It gives me great pleasure to reflect on the road that ISAAA *Afri*Center has taken over the last 10 years (2005 - 2015). I celebrate with

AfriCenter, the achievements towards enhancing Africa's knowledge on crop biotechnology and facilitating an environment that has spurred progress in the region. Indeed, Africa is rising. From the numerous policy pronouncements, to enactment of biosafety policies in some countries, and research focusing on the continent's unique challenges, progress it truly evident.

Although there are various challenges stemming from sudden political decisions, misinformation and heightened activism against the technology, we as a team must stay the course and continue sharing knowledge for informed policy and choice.

It does not escape my notice that as of 2015, 3 African countries grew approximately 3 million hectares of biotech crops. The farmer voices reporting improved livelihoods, higher yields and quality produce is inspiring.

The progress this far has been made possible by many valued and varied partners whose dedication and commitment to empower resource poor farmers continues to motivate us. We look forward to their continued support and collaboration in the years ahead.

### Message from the Chair Emeritus Dr. Clive James



ISAAA was founded on the conviction that if a technology like biotech were to get into the hands of resource-poor farmers, it can generate significant benefits that would enable them to break free from hunger and poverty cycles.

2015 marked the 20th year of commercialization of biotech crops. Since their adoption, millions of resource poor farmers across the globe have accessed this technology. Most of these farmers continue to give testimonies of how biotech has been beneficial to them. However, in certain parts of the world where the technology is needed, ideological wars continue to block adoption, denying resource-poor farmers the right to make choices.

To get biotech tools into the hands of those that need it the most, we endeavor to share the benefits of the technology with key stakeholders using various knowledge sharing initiatives. We disseminate this knowledge freely, but we respect the rights of others to make decisions based on that knowledge.

ISAAA is engaged in knowledge sharing for informed policy and choice. For us to achieve our goal of alleviating poverty and hunger through biotechnological applications, we must create awareness about the technology, and empower key decision makers with evidence that enables them to make informed decisions.

That is why I was elated when I heard that the *Afri*Center was taking stock of the knowledge sharing and communication activities that they have used over the last decade (2005-2015). I congratulate ISAAA *Afri*Center for this report that highlights the key activities they feel were most impactful over the last ten years in focus.

The AfriCenter is setting the pace for the next decade in the field of communicating crop biotechnology. Their footprint across the African continent is visible. Having witnessed how impactful their knowledge sharing and policy outreach initiatives are, I believe that this report will serve as a key resource to those working in the field of communicating the science.

African leaders are slowly realizing that biotechnology can play a significant role in overcoming food production challenges, with three countries having adopted the technology, and another eight conducting field trials by 2015. I urge the *Afri*Center and her partners to keep up the pace in creating an enabling environment for biotechnology development in Africa.

For African farmers, the need for improved seed is greatest. Extensive experience from planting biotech crops over the last two decades is exemplary for these resource poor farmers. Therefore, efforts to empower them with information that will enable them to make informed choices remains critical.

I wish the *Afri*Center every success as it strives to achieve its mission.

### Message from the Global Coordinator Dr. Randy Hautea



I would like to congratulate the *Afri*Center team for a fruitful decade (2005-2015) of effectively communicating agricultural biotechnology and biosafety issues in Africa.

From its foundation, the Center has played a pivotal role in supporting other Biotechnology Information Centers (BICs) on the continent by overseeing their operations. These BICs have contributed towards communication and knowledge sharing initiatives across Africa, helping serve the region's appetite for credible and authoritative information on agribiotechnology and biosafety.

ISAAA AfriCenter and the respective African BICs have not limited themselves to solely informing the African populace. They regularly share the continent's updates on agricultural biotechnology and biosafety globally and through ISAAA's weekly Crop Biotechnology Update (CBU). This has greatly improved the Knowledge Center's scope in providing a balanced global overview of crop biotechnology updates, and kept our global subscribers informed on the latest news from the region.

In addition, the *Afri*Center's rich publications have helped to enlarge ISAAA's library for the good pleasure of our readers throughout the world. To promote evidence based decision making on agricultural biotechnology, the Center has formed partnerships and adopted creative approaches to reach a larger pool of key stakeholders.

This 10 year report captures various strategies that the *Afri*Center has employed over the years (2005-2015), and will serve as a useful resource to many who, like ISAAA, strive to equip its

citizenry with credible scientific information to enable informed choices.

As we celebrate 20 years of commercialization of biotech crops in 2015, it is my sincere hope that *Afri*Center and her partners will maintain their vibrancy in sharing credible information on agricultural biotechnology. This remains a key ingredient in facilitating an enabling environment for agri-biotech in Africa.

Although the road has been long and tough, the progress currently being witnessed across the continent proves that the efforts are not in vain.

Ongoing research in the continent means that Africa could contribute five new biotech crops to the global biotech basket in the coming years. The years ahead look promising.

While this report is a celebration of ISAAA AfriCenter's success over the last decade, It is also a reminder that a lot more work still needs to be done for poor resource farmers across Africa to access improved seed. I take this opportunity to wish ISAAA AfriCenter the best as it strives to make this a reality.

### Message from *Afri*Center's Director Dr. Margaret Karembu



The last decade has been fruitful for the *Afri*Center. Apart from marking two decades of existence since its establishment in 1994, the Center has also witnessed notable gains across Africa with a total of four countries namely South Africa, Burkina Faso, Egypt and Sudan, having placed biotech crops in the hands of farmers. Eight others - Cameroon, Egypt, Ghana, Kenya, Malawi, Nigeria, Swaziland and Uganda - have advanced field trials nearing commercialization in the next five years or so. The landscape for agricultural biotechnology in Africa is bright.

These advances indicate African countries are slowly but surely incorporating a wide range of tools in their agricultural practices to circumvent food shortages and famines that have repeatedly ravaged the continent.

The AfriCenter is proud to have played a role towards this realization. In the last decade (2005-2015), we intensified our communications, policy engagement and outreach efforts to counter the rising misinformation used to vilify agricultural biotechnology across the continent.

The journey has been long and arduous. However, the myriad of challenges faced by Africa's small-holder farmers and the possibility of empowering them with tools that can help them overcome those challenges and break out of poverty encourages us to keep going. We must not relent. This resolve is guided by our commitment to enhance food security and reduce poverty in sub-Saharan Africa.

Our mission is to share knowledge on agricultural biotechnology and biosafety through strategic communications and outreach for informed policy and choice. To achieve this mission, the Center has focused on four principal areas, namely: communication and knowledge sharing, capacity strengthening, forging strategic partnerships, and policy outreach.

This report captures activities we employed over the last decade to concretize the Center's mission. It is by no means a comprehensive and thorough review of the formative years of the Center. The aim is to give a synopsis on the strategies we have used and consider effective in the field of agri-biotechnology and biosafety communications. We hope that others will benefit by refining some of these strategies to fit their unique challenges.

The successes of ISAAA AfriCenter are rooted in great partnerships that are nestled on the desire to improve Africa's food security through appropriate policies and practices. It is through these innovative and strategic partnerships that we have managed to achieve tremendous impact across the continent. On behalf of the team here at the AfriCenter, I thank our funders, partners and stakeholders for being part of our amazing journey. We appreciate your continued support and goodwill over the years.

# **CHANGING PERCEPTIONS & BUILDING PUBLIC TRUST**

"Knowledge is like a garden: If it is not cultivated, it cannot be harvested"

African Proverb



Low awareness and limited knowledge on issues pertaining to agri-biotech and biosafety can hamper technology acceptance. This is especially true in Africa where fear, concerns and myths about agri-biotech have hijacked the debate. Scientific facts and evidence available have been undermined, creating bottlenecks that have delayed adoption. A reliable knowledge base is critical for moderating public perceptions for informed choices.

In response to this need, ISAAA AfriCenter, has over the last decade, intensified its information and knowledge sharing activities. Guided by our resolve to share knowledge on agri-biotech for informed policy and choice, the Center has managed to serve information needs of different stakeholders and quench the continent's thirst for science-based information and knowledge.

A strategic communications plan that is constantly reviewed in accordance with the dynamic agri-biotech environment has effectively guided the Center's communications and outreach activities. This has enabled our stakeholder base, which include, consumers, farmers, policy makers, scientists, academia, and the media, to receive up to date credible and authoritative information on the technology. Various approaches to change perceptions and build public trust in agri-biotech have been employed, and owing to these efforts, significant strides have been witnessed across the continent. This chapter captures some of those strategic knowledge sharing initiatives that have stood the test of time.



Taabu Mwarumba, a small-scale farmer from Kenya, speaks to the media about challanges she faces in her farm. The AfriCenter creates opportunities for farmers to speak about their concerns and voice out their opinions about agri-biotech. In this interview, Taabu spoke about her struggles managing stalk borers in her maize farm. She expressed desire to adopt Bt maize which she believes will help her tackle this menace.

# Launching of the Annual Brief across Africa



Tanzania's Assistant Minister for Agriculture, Food Security and Cooperatives, Godfrey Zambi (left) launches Brief 49-June 2015

The Annual Review on the Global Status of Commercialized Biotech/GM crops is ISAAA's flagship product for knowledge and information sharing. The report, commonly referred to as the Brief, is unique and has become the standard reference for biotech crops by popular media, academia and governments worldwide.

Given its positive impact, the AfriCenter has played a critical role in launching the Brief across the continent and scaling out its reach and use. These launches have provided a valuable platform for policy pronouncements and enabled the agricultural biotechnology discourse to penetrate the news agenda throughout the year.

Notably, the global adoption trends shared during these launches are an eye opener to government officials who are usually invited to the events. The trends act as confidence boosters and a source of inspiration. They have also served as a stark reminder that many countries are moving on and reaping tremendous benefits from agricultural biotechnology.

As Honorable Kityo - a former member of parliament and the Secretary General of the Uganda National Farmers Federation - rightly put it during the 2010 launch in Uganda, "our leaders must change their attitudes towards GM to ensure that when Africa is waking up, Uganda is not left behind."

To maximise the Brief's reach, the AfriCenter also distributes over 1000 copies to Heads of State and key government officials across Africa.

# Appreciation of Brief 49 from Office of the President in Ghana and Zambia

BECRET STATE SCALE LOBBERG EPHELIC OF 240 88/3/2/7 14" August, 2018 Dr. Margaret Karwenhu Director and Chair ISAAA ASSCentie P.O. Box 70 Nairobi, 00005 RENTA. Dear Dr. Karmetra GLOBAL STATUS OF COMMERCIALISED BIOTECH/GMO CROPS 2014 This is to acknowledge, with thanks, receipt of your report and eccover if your letter dated 2<sup>o</sup> Auly, 2015 addressed to His Eccellency the President of the Republic of Zambia. The purpose of this minute is to inform you that we are grateful he including us on your mailing tail. Your report is insightful. Yours siccore? SPECIAL ASSISTANT TO THE PRESIDENT IECONOMIC AND DEVELOPMENT AFFAIRS OFFICE OF THE PRESIDENT FLAGSTAFF HOUSE ACCRA 25HE-3U/V 2015 RE: GLOBAL STATUS OF COMMERCIALISED BIOTECH/GM CROPS: 2014 BY CLIVE JAMES ISAAA BRIEF ND. 49-2014 I wish to acknowledge vecept of your letter dated 3" July, 2018 on the above autors. The Bolef is very informative and His Excellency President John D. Mahama withes to express his gratitude to you for your generosity. T: Thank you SECRETARY TO THE PRESIDENT (ROGER ANGSOMWINE) SECRETARY TO CABINET **DR. MARGARET KAREPIBU** DIRECTOR, ISAAA AFRICENTER P.O. BOX 70 NAIROUIT e-mail: africanter@laaaa.org

### Launch of Global Status of Commercialized Biotech/GM Crops:2014



Hon. Jabulani Mabuza (left), Minister for Tourism and Environment, Swaziland

"Over the last 19 years of commercial production of GM crops, no ill effects have been reported over their use on either human health or the environment. I encourage Swazi farmers to learn more about agricultural biotechnology, embrace it and apply it when the time comes."

### Inspired Government Officials to Re-evaluate their Policies and Regulations



Hon. Adam Malima, Deputy Finance Minister, Tanzania

"Countries like South Africa, Sudan and Burkina Faso have tremendously improved their agricultural sectors through advanced research on biotechnology and GMOs. However, under current government regulations, scientist in Tanzania cannot conduct field trials with GM crops. These regulations should be relaxed to allow scientists to effectively and efficiently conduct their scientific work, for the betterment of the farmers and the nation. If we cling to this unfriendly regulations and laws that limit biotechnology and GMOs, we should brave ourselves for poor crop production due to the increasing vagaries such as drought and crop diseases"

**Created a Platform for Policy Pronouncements** 

### Expanding the Role of Biotechnology Information Centers

The heart and soul of the Global Knowledge Center in crop biotechnology is in its growing network of Biotechnology Information Centers (BICs) or country nodes. Generally, BICs are the forefront of responding to scientific information needs and in promoting and advancing a broader public understanding of crop biotechnology in their respective countries. They are recognized in their respective countries as a major source of biotechnology information.



Depending on specific country conditions such as level of awareness and status of biotechnology activities, each BIC conducts the best combination of communication activities to promote a broader public understanding and balanced perspectives of the attributes of agri-biotech and biosafety.

The BICs also synthesize and package information using appropriate formats for various stakeholders, including translations into local languages and process documentation. They are supported through the Knowledge Center's (KC) global information network.

The AfriCenter runs three BICs in Africa. The Eastern and Central Africa BIC (ECABIC) based in Kenya; Western Africa BIC (WABIC) for Francophone West Africa based in Burkina Faso; and Egypt BIC (EBIC) for Arab-speaking northern Africa and beyond. The Ugandan Biosciences Information Center (UBIC) became part of the ISAAA global network in 2013.

### The Eastern and Central African Biotechnology Information Center (ECABIC)

ECABIC was initiated in 2001 and is housed by the *Afri*Center in Nairobi, Kenya. It coordinates biotechnology communication activities in Ethiopia, Kenya, Malawi, and Tanzania. One of its core mandates is in co-ordinating launches of the annual global status report in eastern and central Africa.

Over the years, ECABIC has played a key role in supporting capacity building and biosafety legislative processes to enable focus countries enact science-based biosafety laws. For instance, between the year 2006 and 2008, ECABIC in partnership with ABSF successfully coordinated stakeholders under the Kenya Biotechnology and Biosafety Consortium (KBBC). The consortium mobilized support for the Biosafety Bill by building a strong team of champions within parliament who ably defended the Bill from a point of knowledge. The well-co-ordinated efforts led to the Presidential assent of the Bill in 2009, into the Biosafety Act 2009.

For more information on ECABIC, visit www.africenter.isaaa.org

"What we have learnt will enable us to conduct factual and evidence-based debate on the Biosafety Bill."

Hon. Julius Arungah, Former MP and Chairperson of the Agricultural Committee in Kenya, during the South Africa biotech study tour in 2006.



### The Egypt Biotechnology Information Center (EBIC)

Initiated in 2003, EBIC acts as the main source of credible science-based information for Arab-speaking Northern Africa. The Center translates, among other materials, the executive summary and top ten facts from the annual global status report into Arabic. EBIC also holds various workshops to raise awareness and update policy makers, scientists, academia, farmers, the media and opinion leaders, on pathways to commercialisation of biotech crops in Egypt and North Africa.

In 2012, EBIC launched the first Science Magazine in Egypt dubbed *The Science Carnival*. The free monthly publication is prepared by scientists and students to enhance understanding on all aspects of biotechnology and biosafety. It is expected to evolve into a science newspaper for the region.

For more information on EBIC, visit http://www.e-bic.net/

### The Western Africa Biotechnology Information Center (WABIC)

WABIC is made up of two sub-nodes, one in Mali and the other in Burkina Faso. The Center plays a key role in distributing credible science based information in french, and reaching out to Francophone West Africa. It also serves as the focal point for launching ISAAA's global status report in Francophone Africa.

A notable achievement of WABIC is the formation of the Regional Biotechnology Journalists Network (RECOAB), established in 2005 during the ministerial conference on agricultural biotechnology held in Bamako, Mali. The network obtained its legal status in 2009 and has become an authority in sharing knowledge on agricultural biotechnology in the western Africa region.

WABIC works closely with the Burkina Biotech Association (BBA). The association was created by Burkina Faso scientists, with the objective to provide a forum for specialists in the field to voice their opinions and concerns. They produce a monthly newsletter, the *Biotech Echo*, with support from the *Afri*Center.

For more information on WABIC, contact Dr. Zangre Roger on gr\_zangre@yahoo.fr





# The Uganda Biosciences Information Center (UBIC)

Established in 2013, UBIC is an initiative of the National Agricultural Research Organisation (NARO) and is hosted at the National Crop Resources Research Institute (NaCRRI). UBIC's goal is to facilitate informed decision-making by contributing to increased public understanding of general biosciences, with specific emphasis on agricultural biotechnology, and build public confidence in the regulatory system.

The Center's objective are to serve as a source of accurate information on modern biotechnology and biosafety; provide a forum for discussion of the priorities, benefits and risks of modern biotechnology in the national interest of Uganda; and, to strengthen biotechnology training in the formal education system in the country.

In a bid to enhance public awareness about modern biotechnology among the youth, UBIC organised the first annual national biotechnology essay writing contest in 2014. The contest attracted 60 competing essays in two categories: secondary schools and post-secondary educational institutions. Thereafter, the Center published a booklet featuring the winning essays. The publication was shared with various stakeholders as part of UBIC's initiative to share information on biotechnology from the youth's viewpoint.

For more information on UBIC, visit http://ugandabic.org/n/



L-R Standing: Rep. National Curriculum Development Center, Commissioners for Secondary Education, Director Crop Resources MAAIF, Deputy DG NARO; Director NaCRRI; Coordinator UBIC L-R Crouching; J. Odur, M. Oharwe; V. Twinamatsiko; R. Okwasiimire; M. Nakanwad; E. Bwambale

### **Developing and Disseminating Knowledge Products**

Access to scientific information in Africa is a real challenge. This is further compounded by language barriers and literacy levels. *AfriCenter* has responded to this challenge by developing simplified information and education materials to serve the information needs of different stakeholders. This involves packaging scientific information into simplified easy-to-use knowledge products that are reflective of and responsive to local cultures.

Over the last decade, the Center has developed and disseminated a significant number of information, education and communication (IEC) materials to various audiences, as well as repackaged ISAAA's global status report into a variety of simplified popular formats such as briefs, Pocket Ks, infographics, and videos.



Global Status & Economic Benefits of Biotech Maize by 2014

This brief highlights the countries that are growing biotech maize, their hectarage and preferred traits, as well as the farm income gains accrued from planting biotech maize. Key Biotech Crop Traits in Africa by 2014



Key Biotech Crop Traits in Africa by 2014

This booklet provides facts about the development of biotech crops each trait at a time, their safety to consumers, benefits accruing from their adoption and the status of adoption in various countries.



Publication

# Top 10 facts about biotech/GM crops in Africa

An off-shoot of the Annual Review on the Global Status of Commercialized Biotech Crops, this brief documents the top ten facts about biotech crops in Africa. The product, done on an annual basis, is key in highlighting Africa's progress in bite-sized chunks of information that are easily digestible.



### Successful Bt cotton cultivation in Burkina Faso

This annual knowledge sharing product, with parts excerpted from the Global Status report, documents Burkina Faso's progress with GM cotton since its inception and highlights the benefits and future prospects while capturing farmers' testimonials.

# Publication Highlights





# Bt cotton cultivation in Sudan

As a new comer in the GM cotton scenario, not much has been written or documented about Sudan's progression towards adoption of Bt cotton. This brief, also containing excerpts from the Global Status report, highlights Sudan's cotton cultivation history and the current status of Bt cotton production in the country.



# Progress with biotech crops in Africa

Produced on an annual basis, this brief captures the progress with biotech crops in Africa. It brings to light the status of commercialised GM crops in Africa as well as the stages of crop biotech research and development in the continent. The brief also highlights the status of biosafety regulation and discusses the challenges to adoption and future prospects.

# White Gold: Biotech cotton producing countries

In order to break down complex data and present it in a palatable and visually appealing manner, the *Afri*Center repackages select information from the Global Status report into easier to understandinfographics. The 'White Gold: Biotech producing countries' infographic produced in 2013 gave snippets of the global Bt cotton hectarage as well as the economic benefits accrued by adopter countries.



### Deficiencies in Study Linking GM Maize to Cancer: Global Scientific Perspectives

The Seralini study, that linked GM maize to cancer, was used to stir negative publicity against GMOs. This issue brief highlighted the unanimous scientific consensus on safety of GM maize and underscored the study's flaws.

### MAKING THE FOOTPRINT: SOME IEC MATERIALS FROM THE AfriCENTER



### **Seeing-is-Believing Biotech Study Tours**

Every year since 2006, ISAAA AfriCenter in partnership with research institutions and other partner organisations in Africa has organized seeing-isbelieving biotech study tours to Burkina Faso, South Africa, Europe, and other parts of the world.

These visits were initiated during the Biosafety Bill process in Kenya, when legislators expressed a need for exposure visits to countries that had commercialised biotech crops. As a result, the *Afri*Center and her partners under the Kenya Biotechnology and Biosafety Consortium (KBBC) facilitated legislators and other key stakeholders such as journalists and farmers on fact-finding missions. The study tours provide experiential learning opportunities for a wide range of stakeholders and have become popular among African countries working towards commercialization of biotech crops.

During these visits, policy makers and regulators get an opportunity to interact with their peers from countries growing biotech crops. These interactions reveal the significance of a supportive regulatory and policy environment for biotech crops.

Farmers on the biotech study tours receive first-hand information about biotech crops from their counterparts who share their experiences freely.

Media practitioners get exposed to the real products and interact with farmers who give personal testimonies on the benefits of GM crops. These biotech study tours also enable members of the fourth estate to forge linkages with local researchers as important sources of agri-biotech information.





"We worked on the Biosafety Bill which Parliament has passed into an Act, and during the passage of that Bill, my interest in biotechnology was enhanced through exposure tours to Burkina Faso and South Africa"

- Hon. Francis Addai Nimo, Member of Parliament, Ghana, 2011 during a Burkina Faso study tour with Ghana MPs

"The things we saw on the ground are experiences that are not mentioned in journals. To see the physical conditions of farmers and how they have benefited from Bt cotton is an eye opening experience."

Dr. Sylvester Nguni, former Zimbabwean Minister of State in the Office of the Vice-President, during a biotech study tour in Burkina Faso in 2012.

### **Partnering with the Youth**

Youth are an invaluable asset to agricultural development as their interest in smart farming grows. They are more likely to experiment with new knowledge and tools. Therefore, ensuring that future beneficiaries of modern biotechnology have a good grasp on the issues surrounding the technology is important. Furthermore, they play a key role in educating their communities.

In an attempt to popularise and promote awareness and understanding of agri-biotechnology amongst the youth, *Afri*Center launched a 'Biotech Fashion Show' and an 'Inter-University Quiz' during the National Science Week in Kenya, held by the National Commission for Science Technology and Innovations (NACOSTI) in 2012.

The activities enabled the *AfriCenter* to demystify biotechnology issues to the youth by making it applicable to their daily lives. The Center was able to reach out to unique audiences such as fashion designers and youth in tertiary institutions. Furthermore, these innovative ideas of communicating agri-biotech have now been adopted by the Kenyan Youth Biotechnology Network (KYBNet), a youth network under BioAWARE that aims to engage youth in biotechnology awareness, facilitate mentorship and stimulate biotech entrepreneurship among young people in both formal and non-formal education.



The youth parade their talent and creativity during a biotech fashion show

"Fashion and clothing are forms of nonverbal communication where no spoken or written words are used, but they send strong messages. This competition has given students an opportunity to showcase their understanding of biotechnology through fashion. This is a good way of communicating biotechnology to the common man."

Mrs. Alice Kamunge, Director, Vera Beauty College, Kenya.

### **Reaching out to Farmers and Community Leaders**

For rural communities in Africa to appreciate modern agricultural biotechnology, their leaders have to play an active role in educating them about the technology. This is because they are viewed as trusted sources of information by their constituents. Ultimately, their leadership may be the catalyst through which positive change will occur. It is therefore important that they are equipped with the right messages about agri-biotechnology.

Findings of a joint survey conducted by ISAAA *AfriCenter*, the Kenya Agricultural Research Institute (KARI), and the Integrated Community Organization for Sustainable Empowerment and Education for Development (ICOSEED) established that farmer knowledge level and awareness on agri-biotechnology and especially Bt cotton was very low in the eastern region, one of Kenya's cotton growing areas. Based on these findings, the *AfriCenter* embarked on a trainer of trainers (TOTs) course for extension field officers, leaders of farmers' groups, as well as faith-based and civic leaders in the region.

The trainings emphasized the need for increased awareness creation at the grassroots, and strongly recommended that faith-based leaders and

frontline staff at the Ministry of Agriculture integrate agri-biotech in their day-to-day messages. This would help deliver the message through trusted sources and ensure farmers and community leaders are well informed and capable of making decisions on responsible use of modern agricultural biotechnology. The *Afri*Center has held subsequent TOTs in other regions, guided by a curriculum that was developed to ensure community leaders are equipped with sufficient information.



I believe that agricultural biotechnology will help address food insecurity in Africa where the population is ever increasing yet the land remains constant.

Archbishop Dr. David Gitari (late), former Head of the Anglican Church of Kenya during the TOTs workshop.

Farmer leaders during an agri-biotech sensitization workshop in Tamale, Nothern Ghana, 2013.

### **Communicating Agricultural Biotechnology in Real Time**

The advent of social media revolution has drastically changed how the public engages with scientific information and greatly improved ways in which science communication practitioners could share information. This new medium offers science communicators the ability to enhance output of science stories by combining information richness of print, with the demonstrative power of broadcast, in an interactive manner that is accessible to millions of audiences.

In 2012, the *Afri*Center embraced social media use in its communication to reach out to the wide online community and relay agri-biotech information in real time. By 2015, ISAAA *Afri*Center had received over 460 likes on Facebook, 2500 followers on Twitter, and its YouTube channel had over 1700 views. The Center also revamped its website in order to add more context to the agri-biotech debate by enhancing interactivity with online audiences.





**@ISAAA AfriCenter 2506 followers** 



ISAAA AfriCenter 1744 views



# **STRENGTHENING CAPACITIES TO DELIVER THE BIOTECH MESSAGE**



# "When there are experts, there will be no lack of learners"

African Proverb



Journalists interviewing Mr. Anthony Mugeya-Phiri, Director General - National Commission for Science and Technology (NCST), Malawi. This was during an ISAAA AfriCenter science communication workshop held in November 2014 for NCST officials in Malawi.

A reliable knowledge-base from trusted sources is critical if the efforts of shaping public perception on agri-biotech are to be realised. This is because both the message and the messenger combine to shape public perception.

However, the poor relationship between scientists and journalists has created rifts in science communication. This has led to superficial coverage of agri-biotech stories and has had a negative effect on policy formulation and acceptance of the technology.

AfriCenter has remained alive to the need of well-trained and informed partners in the field of agri-biotech. As a result, the Center has invested heavily in capacity building for partners who play a role in shaping public opinion and who confront issues of agri-biotech regularly. This includes key stakeholders such as media practitioners, scientists, regulators and even teachers.

### **Empowering Scientists to Engage with the Public**

When it comes to engaging with the media and the general public, scientists often prefer to take a back seat. This problem primarily stems from their education and training, made worse by the fact that in the past, they only had to explain their work to a technical audience.

Today however, the pubic have become more alert and want to have a say in what scientists can or cannot do. Scientists are therefore confronted with the challenge of having to re-package their

The number of Scientists trained in a year by the AfriCenter

findings to suit a lay audience. Given the controversial nature of modern biotechnology, scientists' limited public-communication skills have contributed immensely to societal misunderstanding of the technology. Their inability to understand how the media operates has further aggravated the matter. To address this predicament, the *Afri*Center conducts several science communication trainings for scientists per year, and as a result is able to transform how they engage with lay public and the media.



Dr. Anton Bua from Uganda (center), Dr. Taracha (right) and Dr. Makelo (left) from KALRO participate in a mock media interview during a science communication training workshop



The AfriCenter developed a science communication training manual for introducing scientists to general principles of science communication. The manual aims to equip users with skills to design and implement a communications strategy and develop message maps. It gives tips for repackaging messages for diverse interest groups, and techniques for media relations and issue management.

"The training offered by ISAAA has tremendously built my confidence in engaging with the media"

Dr. Catherine Taracha, K ALRO Scientist

### **Engaging the Fourth Estate**

The media shapes public opinion in the way it selects, packages and presents information to its audiences. They decide what to cover and what not to cover; what to emphasize on and what to downplay. In other words, media assign value to issues, and the public always tends to subscribe to their values. Having a group of journalists with factual knowledge on agri-biotechnology and biosafety is therefore an important asset. Bearing this in mind, the AfriCenter has established a working relationship with the mass media in an effort to improve accurate reporting. One way is through a scientistjournalist pairing scheme that enables these two professions to build a working relationship. The pairing scheme has contributed to more balanced and accurate coverage of agri-biotech and biosafety issues in the continent.

NEW MAIZE VARIETY GIVES HOPE TO EMBU FARMERS

### CATUADAY NATION IL/10 SCIENTISTS SET TO UNVEIL MAIZE VARIETY FOR DRY A

At the Kiboko Research Station in Makindi trial gardens thrive with maize. The maize, w currently undergoing drought-tolerance and resistance testing, is bound to revolutionise according to scientists involved in the resear Or Muninga Mwimall, the agriculturalist or ing the Water Efficient Maize for Africa proje Kenya, explains that the maize is four times. resistant to drought than what is currently i in market.

"This is the sixth experiment of the MON maize variety, which is not only drought-tok but also fast-maturing, high-yielding and pe disease-resistant," Dr Mwimali says.

One more test will conclude the trial pha maize allowing for the commencement of o trials ahead of commercial approvals.

The project is being overseen by Agricul wilcov Foundation and funded by Bill and I The Star Scientists push for adoption of STREET & improved maize varieties BY AGATHA MICTHE

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**Researchers** harvest first crop of GM maize in ongoing trials

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But it is unlikely term France's Corn Univerfarmers will grow the variety soon malas de due to safety concerns

BY GATONYE GATHURA

The generically altered totoe variety that had to the as of generically modified ac-orbitres (GMO) food insparts

harvest, he told in a study that attracted gisa-al attention, claimed that rate the media, was the third time they serve anxing this gene in main locally. "We serve specifof on the generically-attend make developed science in-or and kidney damage as well as humanial distribution of high sites of large cancer-sist memours and deaths in ment of the study groups. Based on these findings, for ment localib Minister Josh Ma-to memorial bases. oped sevene fla ally resting its drought stain tarsee and its resid techniki i stores horges that cause about 1 ind 17 per cent in Kerrya. Mr Mogo says they still have store work to do before they man apply to the NBA in particle under the market. How go preserved her concerns aver the safety of GMOs as farmer Provident Mwai (Ghaki') Cabever recent developments per doobs's on the NBAs supaci-

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DAILY NATION hursday September 18, 2014 Planting uncertified of poor crop harvest

Mondae Tearantier 12, 2011 / Ten Longar

Farmers to adopt

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BY MARCY ALASTAGE

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INTEREST COURTS



# State under pressure to lift ban on GMOs European Union has

given nod to biotech oods and wants State to lift ban on imports

Science the only way to end

Kenya's annual hunger ritual

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7200,000,000

Residences success





KENYA MOVES CLOSER TO ADOPTING GM MAIZE



The center holds a number of capacity building initiatives to sustain media interest in agri-biotech and biosafety. Key among them are training workshops where media educators are taken through agri-biotechnology development processes and briefed on the latest issues and concerns in the continent. A case in point



is a UNESCO sponsored *Training-of-Trainers* (TOTs) workshop that took place in November 2009. The training originated from the realization that building capacity of media educators on advanced radio interviewing skills and exposure to basic concepts on agri-biotech and biosafety would have a multiplier effect of training a larger pool of journalists.

The AfriCenter anticipated such a training would enhance regional capacity with potential to institutionalize specialized writing on agri-biotech and biosafety in journalism training curriculum.

At the end of the workshop, the trainers came up with a course outline which they committed to implement either in current curriculum or as short-training courses in their institutions.

## THE DATUT PEOPLE, Thursday, Nov. 5,2009



Margaret Karembu, the director of ISAAA Africentre (right), discusses a point with Mary Kamau, the director of extension and training in the Ministry of Agriculture, during a capacity building training workshop for media educators on reporting agricultural biotechnology and biofuels in East Africa. Participants were drawn from Kenya, Tanzania, Uganda, Rwanda and Ethiopia - HENRY WAHINYA

The Center also holds hands-on-capacity building activities where the journalists and editors visit laboratories, field trials as well as farmers' fields. As outlined under the 'Seeing-is-Believing Biotech Study Tours' section, these exposure visits demystify the technology and have resulted in improved and balanced reporting of agri-biotech in Africa.



Journalists extracting DNA during one of ISAAA AfriCenter's hands-on-capacity building activities. DNA extraction helps to demystify the technology further for the reporter

"Contrary to what I had thought would be giant cotton plants in the fields, I was amazed to see ordinary but very healthy cotton crop like the one I always knew. On touching and feeling it, I started questioning the motive behind some foreign articles I had read earlier portraying biotech products as monsters. I was also able to ask many of the questions I had about agricultural biotechnology to the local researchers. By the end of the three-day tour, my perceptions totally changed. Based on what *I saw in Burkina Faso, I published many press* articles that I strongly believe helped to re-focus the thinking of authorities in Ghana on the need to enact laws to facilitate research on modern biotechnology."

Linda Asante Agyei, a Senior Journalist with Ghana News Agency after a Bt Cotton study tour to Burkina Faso in November 2004.

### **Enhancing Biosafety Communications**

The credibility of regulators is an important factor in public acceptance on safety of agri-biotech products. Failure to adequately communicate and address the public's fears and concerns leads to rapid loss of trust. Balanced communication on perceived risks and potential benefits of agri-biotech fosters better understanding of the technology's role in national development. Therefore, effective biosafety communication by regulators is critical to adoption of agri-biotech.

To equip regulators with the necessary skills needed to respond authoritatively to biosafety issues and concerns, the *Afri*Center conducts risk communication trainings for biosafety officers, regulators and senior officials from relevant ministries across the continent, in collaboration with the Program for Biosafety Systems.

At the beginning of each training, participants share their expectations from the training, but more specifically, a pre-workshop questionnaire is filled to determine the level of awareness on GM crops research, adoption and commercialization, especially in their country of origin. *Afri*Center has deviced a pentagon which is used to measure key communication and messaging skills before and after the training.

The mode of training is participatory and comprises of various topics including principles of effective science communication, message development, responding to challenging issues, effective media relations, communicating science through new media and stakeholder mapping. An overview of research and commercialization at country level and globally are also included as part of the training package.



Participants from Kenya's National Environment Management Authority, one of the regulatory agencies, extract DNA during a biosafety communications workshop



The pentagon used to measure communication and messaging skills development

One such training was held in Arusha, Tanzania, for senior biotechnology stakeholders drawn from East and Central Africa. The participants were a rich mix of parliamentarians, journalists, researchers, farmers, academicians, development experts, government officials, seed traders, civil society representatives and regulators. The training was organised with support from the US Grains Council and aimed to build risk communication capacities of key agri-biotechnology stakeholders in the region.



A message map on food and feed safety of modern biotech products



Participants in the Arusha workshop engage in discussions during group work sessions

"The course was relevant and timely for my work. Let us have continuous follow-up of the principles learned in every regulatory agency."

A participant's feedback from the training

### Sensitizing Public Communications Officers

The role of public communications officers (PCOs) in key government ministries and departments towards understanding of biotechnology cannot be underestimated. This is because they are the people that handle government communication issues on a day-to-day basis. In recognition of this, *Afri*Center partnered with various governments in the continent to train PCOs in key ministries and government institutions.

The objective of the trainings were to expose PCOs to the basic principles of agri-biotechnology, its adoption trends, and the status of biosafety frameworks in Africa. The trainings were inspired by the need to have a credible



A participant presenting a message map developed during the training. The participants went through practical exercises of identifying public concerns and developing message maps to address them.

mass of public communication officers who can give factual information both to the public and policy makers.

A case in point is in April 2012 where seventeen participants from the Agricultural Sector Coordination Unit (ASCU) ministries were trained. The workshop covered an array of topics including global and regional updates on commercialized biotech crops, effective agri-biotechnology communications and issues management.



benefited from the training that covered an array of topics including the global status of commercialized biotech crops, the status of agricultural biotechnology in Kenya, and effective agri-biotech communications and issues management. Participants appreciated the relevance of the workshop, stating that the skills they had earned would help them handle ministers' speeches, especially those on agricultural biotechnology, in a better way than before.



"Before the training, I was confused and skeptical about agricultural biotechnology. I have now learnt a lot and in case you need land in Northern Kenya to conduct field trials especially for bio-fortified sorghum I will be ready to offer mine."

Mohammed Lugh, PCO, Ministry of Environment and Natural Resources

### **Taking Biotech to Schools**

To secure the prospects of agri-biotech development and application in the future, educational settings should be used to increase awareness related to the benefits and impacts of the technology.

Given teachers have a significant role in increasing agri-biotech literacy among students, they should have a good understanding of the technology and related processes. *Afri*Center works with science teachers from high schools

and higher institutions of learning to integrate this technology in their disciplines.

In August 2008, the Center and School of Pure and Applied Sciences at Kenyatta University organized a workshop for secondary school teachers.

The workshop involved 25 secondary school science

teachers and two national trainers from the Centre for Mathematics, Science and Technology in Africa (CEMASTEA).



number of science teachers trained by *Afri*Center in 2008 on different aspects of biotechnology and biosafety
The training was participatory and interactive, and included both lectures and hands-on practical sessions. The laboratory sessions deliberately trained teachers to design simple experiments using basic facilities and locally available materials. The practicals were simplified to enable the teachers replicate the same experiments in resource-strained schools where they work. Participants also had an opportunity to visit local institutions undertaking biotechnology activities. This exposure was meant to further enhance their knowledge on the practical applications of agri-biotech in Kenya. The training helped in demystifying the technology, which is viewed as a complicated, expensive process and out of the reach for poor countries. Demand for the course has been on the rise.



Teachers being taken through a laboratory in a local institution during the in-country biotech study tour

"After this training, we hope to incorporate agri-biotechnology in school clubs and have information desks during major events where we as teachers can demystify the technology to our students and communities at large. We would also like to plant tissue culture banana orchards in our schools to showcase the benefits of the technology." Ateacher's remarks during the training

# Enhancing Africa's Capacity for Global Engagement in International Biosafety Negotiations

The potential for genetic engineering to make a significant contribution in the development of better health care and enhanced food security was recognized at the United Nations Conference on Environment and Development, in Rio de Janeiro, Brazil in 1992.

During the conference, a concern was raised on the potential of living modified organisms (LMOs) to negatively impact sustainable conservation of biodiversity. Consequently, a process was initiated to facilitate negotiations for a global instrument to govern modern biotechnology under the auspices of the Convention on Biological Diversity (CBD).

Following lengthy global negotiations, the Cartagena Protocol on Biosafety (CPB) to the Convention on Biological Diversity (CBD) was adopted in Cartagena, Colombia, in January 2000. It entered into force in September, 2003. The core objective of the Protocol is to ensure the safe handling, transport and use of LMOs resulting from modern biotechnology that may have adverse effects on biological diversity, taking into account risks to human health.

As of 2015, 42 African countries had signed and ratified the protocol, in order to exploit the potential benefits of GMOs while safeguarding potential risks. These countries are also expected to provide regulatory oversight on GMOs through functional national biosafety frameworks. This can be done via existing laws or by developing new legislation.

The Protocol's governing body is the Conference of Parties, to the CBD serving as the Meeting of Parties to the CPB (COP-MOP). Its main function is to review the implementation of the Protocol and make decisions necessary to promote its effective operation. Negotiations on the international instrument's implementation are conducted in biannual meetings referred to as COP-MOPs.

Decisions taken during these global negotiations have far reaching implications on the agri-biotech development and biosafety regulation agenda. These decisions could affect Africa generally, and individual party states in particular. Therefore, a unified approach to the negotiations greatly strengthens Africa's position by ensuring that the continent's interests are well served.

For the last three consecutive COP-MOP sessions (COP-MOP 5, 6 and 7), ISAAA in collaboration with ABNE - an agency of the AU under NEPAD, national biosafety focal points, and other partners, have partnered to co-ordinate the participation of African Party states.

This was done through national, sub-regional, and regional workshops. The objectives of the preparatory activities were to raise awareness and harmonize the region's position on priority items of the agenda at the COP-MOP sessions; prepare the actual delegates for engagements at COP-MOP; and identify opportunities for effective participation based on regional priorities and capacities.

A case in point was the Africa regional COP-MOP6 preparatory meeting held in Pretoria, South Africa, in 2012. The meeting, organised by ABNE, COMESA, PRRI, ISAAA, AfricaBio and PBS, brought together delegates, policy makers, scientists and legal experts from 15 African countries to share experiences on regulatory approaches and best practices in implementing biosafety related policy, legal and administrative measures.

The interaction and extensive discussions from the meeting enhanced the participants' level of preparedness and understanding of COP-MOP6 key issues for productive and informed participation during the international negotiations.



A group discussion during the preparatory meeting in Pretoria, South Africa

#### Impact of preparatory workshops

 Remarkable improvement in Africa group's participation in COP-MOP working groups.
 Shared responsibilities in the working groups
 Development of country positions

4. Increased awareness on several COP-MOP issues

# **ENGAGING POLICY MAKERS FOR EVIDENCE-BASED DECISION MAKING**



"If a leader limps, all others start limping too."

African Proverb

The need to empower policy makers with credible and factual information on agri-biotech and biosafety cannot be understated. This is because they face the challenge of making science based policy decisions that have to rely on a strong base of knowledge. However, these legislators – many of whom are non-scientists - don't always have the latest and best scientific evidence to ensure informed policies. They usually have multiple sources of conflicting advice, leading to misguided policies based on politics, individual beliefs and emotions rather than science. This is especially true for agribiotech whose successful adoption and application hinges on knowledgeable policy makers that are constantly armed with factual, timely and accurate information. In this regard, *AfriCenter* works closely with parliamentarians and decision makers to ensure they are well-informed on the advancements of the technology, both locally and globally. The Center engages the decision makers through various methods.

## **Round table meetings**

The Center organizes round table meetings with parliamentarians to enable extensive deliberation between experts and law makers. For instance, in October 2013, a sensitisation session was held with Kenyan parliamentarians about the urgent need to lift the GM foods import ban imposed by Cabinet in November 2012.

ISAAA *Afri*Center and her partners under the Kenya Biotechnology and Biosafety Consortium held a breakfast meeting with select Members of parliament. The meeting played a key-role in kick starting regular interactions with relevant parliamentary committees on the active role they can play to enhance governance of agribiotech in the country.



Hon. Johnson Sakaja, Member of Finance, Planning and Trade Commitee, Kenya Parliament, makes his remarks during a round table meeting

# **One-on-one meetings with specific policy makers**

To sensitize legislators and rally their support for agri-biotech and biosafety issues, the Center holds various one-on-one meetings with key decision makers. These personal interactions create opportunities for the Center to directly deliver messages to the policy makers effectively.

In 2012, for instance, ISAAA's Founder and Chair Emeritus Dr. Clive James paid a courtesy visit to the Minister of State for Agriculture in Uganda, Hon. Prof. Zerrubabel M. Nyiira. The meeting, organised in collaboration with SCIFODE, was also attended by chairperson of the Science and Technology Committee, Hon. Hamson Obua. The team had an extensive discussion about agri-biotech and biosafety matters of national and regional importance.



Dr. Clive James engaging Uganda's Minister of State for Agriculture Prof. Nyiira

'Biotech Corners' within parliamentary libraries enable the Center to distribute information, education and communication (IEC) material on agri-biotech and biosafety, including message maps.

We politicians do not have time to read and digest big scientific reports given the majority of us do not have a basic science background in the first place. Not only did those message maps aid our understanding of what my fellow parliamentarians thought was a complex topic but exposed them to the bigger picture of the world of biotechnology with crispy facts and statistics both in-country and globally. The message maps responded to many of the concerns thus building confidence in the technology, good enough to diffuse the many doubts of more and more members of the national assembly.

Former Member of Parliament from Kenya, Hon. Alfred Nderitu, on message maps that the AfriCenter shared through "Biotech Corners" in the parliamentary libraries.

## **Peer-to-peer learning**

The Center creates opportunities for policy makers to meet with their counterparts in countries that have commercialised biotech crops and learn from their experiences, as well as understand the opportunities and constraints these countries have faced.

In 2013, ISAAA organized a meeting between Burkina Faso's Minister for Scientific Research and Innovation, Hon. Prof. Gnissa Konate; H.E Jack Ranguma, Governor, Kisumu County, Kenya; and H.E Mathew Tuitoek, Deputy Governor, Baringo County, Kenya. The Kenyan delegation wanted to learn how Burkina Faso managed to successfully adopt insect-resistant genetically modified cotton (Bt cotton). The Center has been organising such meetings every year since 2006.

# Reaching out to key parliamentary committees.

The AfriCenter acknowledges that reaching out to the entire legislature is both expensive and taxing. So, in order to achieve greater impact while maximising on limited resources, the Center reaches out to key parliamentary committees whose mandate is directly linked to issues surrounding agri-biotech and biosafety. The Center has invested in ensuring members in these key parliamentary committees are exposed to the local, regional and global trends in agri-biotech and biosafety.

In 2014, the Center, in collaboration with OFAB-Kenya and KUBICO, invited members of key parliamentary committees to a forum with the EU head of delegation, Ambassador Lodewjik Briet. The purpose of this meeting was to provide a platform for Amb. Briet to clarify EU's actual position regarding use and adoption of GM foods. This was necessitated by an earlier statement made by the Ambassador to the effect that Kenyan farmers would lose the EU export market should the country start growing GM crops. Members of the Agricultural Committee paid a courtesy visit to Amb. Briet, prior to the forum, to brief him on Kenya Government's agricultural biotechnology position.



H.E Jack Ranguma (second from left) and H.E Mathew Tuitoek (second from right) with Hon. Kanote (center) during the 2013 Burkina Faso meeting.



Members of Parliament from key parliamentary commitees pose for a photo with the Amb. Briet and his team after the forum.

Key milestones achieved through policy outreach:

#### √ Passage of the Biosafety Bill.

AfriCenter and her partners under the Kenya Biotechnology Biosafety Consortium spearheaded outreach activities for the Bill while in its development stages. The partner organizations played catalytic roles in organizing exposure visits for parliamentarians and high level policy makers, and in developing materials that informed debate on the Bill. A number of one-on-one meetings were organized to educate parliamentarians and other key stakeholders. These engagements provided factual information which parliamentarians used to successfully debate and defend the merits of the Bill, objectively and authoritatively.

#### $\sqrt{}$ **Demand for Biotechnology Products.**

Due to continued engagements with policy makers and key decision makers from the grassroots, AfriCenter has created political good will and buy-in from key decision makers and farmers in Kenya. The county governments have been exerting pressure on the national government to facilitate commercialization of biotech crops. In July 2014, for example, Governors from cotton growing regions developed a communiqué clearly stating their intention to commercialize Bt cotton in the counties. They urged the national government to lift the GMO ban in Kenya.



Kisumu Governor Jack Ranguma, who is also the chairman of Health and Biotechnology Committee in the Council of Governors, chats with ISAAA Africe Centre director Margaret Karembe during a workshop on biotechnology at Safari Club Hotel in Nairobi yesterday. Governors have called for the lifting of the ban on GMOs to enhance food security.

# Governors want ban on GMOs lifted

#### BY NATION CORRESPONDENT

Governors yesterday called for the lifting of the han on GMOs to enhance food security.

The chairman of the Health and Biotechnology Committee in the Council of Governors, Mr Jack Ranguma, said this was the only way to break the cycle of poverty crippling the economy. He called for the commercialisation of genetically modified cotton, maize and cassava.

"The government is fighting a losing a battle in enforcing the GMO ban. Scientists have done research and have confirmed that they are safe. For instance, if the biotech cotton (BT Cotton) is commercialised, our people will have an income. They will not starve," he said in Nairobi during a public forum on biotechnology. Mr Ranguma, who is also the

Kisumu Governor, said the country stood to benefit a lot by adopting new,

cheaper technologies that guarantee higher crop yields. The Government banned GMOs in

November 2012, citing health fears. A taskforce was recently appointed to review the ban and the country's preparedness for GMOs.

Dr Charles Waturu, the director at the Kenya Agricultural Research Institute, Thika, said Kenyan scientists



The government is fighting a losing battle in enforcing the GMO ban"

#### Mr Jack Ranguma, Kisumu Governor

have developed new and resilient varieties of cotton that would guarantee farmers big returns.

"The hurdle at the moment is the ban on GMOs. This has dampened our move to commercialisation of option as well as other GMO foods such as maize and cassava that would greatly address food shortage as we know it. If we lift this ban, farmers will have more money to buy food," he said.

Mr Silas Obukosia of Africa Harvest Biotechnology Foundation International said only crops that had been certified safe for humans and environment are cleared for commercialisation.

Ms Wanjiru Kamau of the Kenya Biodiversity Coalition, a network of over 60 civil society organisations, said the ban had been overtaken by events after the contentious report that former Public Health minister Beth Mugo used to outlaw GMOs had been retracted.

# **CREATING PARTNERSHIPS TO LEVERAGE SKILLS AND EXPERTISE**



"You do not beat a drum with one finger"

African Proverb



The urge to form partnerships, to link up in collaborative arrangements, is perhaps the oldest, strongest, and most fundamental force in nature. Partnering provides a way to leverage the unique skills and expertise of each partner. Our work at ISAAA requires partnerships that ensure organizations share resources and experiences to avoid unnecessary duplication.

Over the years, *Afri*Center has forged numerous partnerships with likeminded credible institutions to attain success in our communication activities. The passing into law, in 2009, of of the Biosafety Bill in Kenya, is one of the biggest achievements of partnerships by agribiotech stakeholders under the Kenya Biotechnology and Biosafety Consortium.

In addition, *Afri*Center has built a wide network of partners in Africa out of the global status report launches that require collaboration and partnerships. OFAB country chapters and ISAAA Associates spread out across the continent have been instrumental in this initiative. The ISAAA Associates Program not only enables the Center to extend its linkages, but also allows it to sustain its reach as the Associates are called upon time and again to undertake various capacity building activities in their countries.

Some of the other partnerships that have continued to create significant impact over the last decade are:

#### The Program for Biosafety Systems (PBS)

- PBS is an International Food Policy Research Institute (IFPRI) managed program, initiated in Kenya in 2007. One of the program's goals is to enhance communication skills of high level policy makers and regulators. This is meant to strengthen mechanisms for implementing functional biosafety systems that support responsible development and safe use of agri-biotech. PBS effectively addresses biosafety through an integrated approach of research, capacity development, and outreach.
- At the start of the partnership, AfriCenter's role was to strengthen agri-biotech and biosafety communication capacities of policy makers and regulatory agencies in Kenya. Following successful model activities, the partnership strengthened and the teams are currently working together to support the institutionalization and full implementation of functional biosafety regulatory frameworks in PBS's focus countries in Africa.
- The strategic partnership with PBS has resulted in various initiatives that have trained regulators and scientists across the continent on effective biosafety communications. Media practitioners have also been sensitized on the status of biosafety in Africa. Opportunities for parliamentarians to enhance their knowledge base on agribiotech and biosafety have also been created. The latter has resulted in quality parliamentary debates and more informed policy decisions that foster an enabling environment for agri-biotech development in Africa.



Journalists extracting DNA during a biosafety communications training organised by ISAAA AfriCenter and PBS, in Malawi

## **African Agricultural Technology Foundation (AATF)**

- The Open Forum on Agricultural Biotechnology in Africa (OFAB) is a platform that brings together stakeholders in agri-biotech and enables interactions between scientists, journalists, the civil society, industrialists, farmers and policy makers. OFAB - Kenya is organized under a collaborative agreement with AATF. The AfriCenter hosts OFAB-Kenya secretariat and coordinates all the activities in Kenya.
- The commitment of stakeholders and impact of OFAB-Kenya has seen the forum expand from the Kenya Chapter in 2006, to seven other chapters namely; Burkina Faso, Ethiopia, Ghana, Nigeria, Tanzania, Uganda and Zimbabwe.
- Since its inception, OFAB-Kenya continues to receive recognition as a neutral platform where a broad range of stakeholders can share knowledge and experiences, network, and explore new avenues of bringing the benefits of agri-biotechnology to the African agricultural sector.



H.E. Jack Ranguma, Governor Kisumu county, addressing participants during an OFAB-Kenya event. OFAB events have provided a podium for policy makers to make policy pronouncements

# The strategic partnership between the AfriCenter and AATF under OFAB has resulted in numerous gains such as:



Creating a platform for stakeholders in Kenya to discuss topical issues . Here OFAB members address concerns on loss of EU market if Kenya were to adopt GMOs



Allowing the agri-biotech story to become a public agenda item.

Dr. Offchillo: Mr. Speaker, Sir, while I appreciate the answer given by the Minister, I want to state from the onset that she has not answered my Question. My Question was clearly, as stated on the Order Paper, to provide acientific evidence. She has just stated a boardroom decision. I need scientific evidence. If you allow me, I am willing to table scientific evidence regarding the Genetically Modified Organisms (OMOs) and their une. Mr. Speaker: Proceed and table your scientific evidence. The Minister will then

Mr. Speaker: Proceed and table your scientific evidence. The Minister will then respond to the question of whether or not she has provided scientific evidence. But you may proceed and table.

Dr. Otichillo: Mr. Speaker, Sir, first, I want to table a Report by the European Fired Safety Automation which and a second state of CIMO fixeds and modulate Samuello-

I want to table a report by the Open Forum on Agricultural Biotechnology, Kenya Chapter, namely, Africa Agri-biotec Update Journal, which addresses the issue of the use of GMOs and how they should be regulated and controlled. Lalso want to table

their use and regulation. In 2009, this Bouse passed The Biosafety Bill, which became The Biosafety Act in 2009. This Biosafety Act allows the country to establish a National Biosafety Authority.

Mr. Spraker: Order, Member for Emulayal You are now exceeding the grant that I gave to you. The grant was to allow you to table scientific evidence. So, you only refer to the scientific evidence by title and proceed to table. Do not explain what it is all should

Enhancing parliamentary debates on agri-biotech issues by providing credible information to parliamentarians. In 2013, an OFAB report on safety of GMOs was tabled in Parliament during a heated debate on the GM imports ban.



Enabling the Kenyan team to take agri-biotech messages to the grass-roots, thereby enhancing awareness among farmers and county governments. Here, Kisumu county government officials visit a ginnery during a special OFAB county event

#### The Kenya National Biotechnology Awareness Strategy (BioAWARE - Kenya)

- BioAWARE-Kenya is a government-led initiative that provides a framework for promoting awareness and understanding of the role of agri-biotech in the country's development agenda. It is hosted by the National Commission for Science Technology and Innovation (NACOSTI).
- AfriCenter in collaboration with other stakeholders participated in the drafting and official launching of the strategy by the then Minister for Agriculture, Hon. William Ruto, in September 2008. The Center has also facilitated various activities under BioAWARE, including: sensitization and awareness workshops for senior staff in the Ministry of Agriculture (MoA) and the Agricultural Sector and Coordination Unit (ASCU) officials, field tours to Bt cotton demonstration trials, and effective science communication trainings for senior staff in the Ministry of Agriculture.
- In spite of the large number of students studying biotechnology, the voice of the youth remains unrepresented in the agri-biotech discourse. To reverse this trend, *AfriCenter* partnered with BioAWARE to come up with a sustainable initiative where the youth could advocate for sound policies and create awareness on crop biotechnology. As a result of this partnership, the Kenya Youth Biotechnology Network (KYBNet) was established in 2013 to engage youth in agri-biotech awareness. The network has undertaken various activities key among them a morning drive radio show on one of Kenya's most popular radio stations amongst the youth.



Deputy President, Hon. William Ruto, then Minister of Agriculture, during the BioAWARE launch



KYBNet at Ghetto Radio after participating in the morning drive show

### **AfricaBio**

- AfriCenter maintains networking linkages with AfricaBio for agri-biotech communication and knowledge-sharing in the southern Africa region. AfricaBio is an independent, non-profit biotechnology stakeholders association, based in South Africa. It provides information, creates awareness and knowledge on biotechnology and biosafety. Through a joint Memorandum of Understanding, AfricaBio has committed to share ISAAA's information material within its network. The two organizations also share an experts' database for engagement in knowledgesharing within the sub-region.
- Over the years, the Center has organised impactful biotech study tours to South Africa in partnership with AfricaBio. The main objective of these tours are to build confidence on biotech crops and encourage evidence based decision making by linking various key stakeholders to small scale farmers in South Africa who have adopted biotech crops.



Kenya's National Environment Management Authority (NEMA) Acting Director and NBA board member Dr. Ayub Macharia during a study tour to South Africa's Bt cotton fields.



Hon. Jeniffer Murogocho (second left), Chair of Committee on Early Childhood Education & Vocational Training, Meru County, Eastern Kenya, with women farmers during a visit to South Africa's Bt cotton fields.

#### The Brazilian Agricultural Research Corporation (EMBRAPA)

- The ISAAA-EMPRAPA-SCIFODE partnerships project assessed barriers to access, adoption and acceptance of genetically modified crops in Brazil, Kenya and Uganda. This was done through comparative analysis of policies, institutional frameworks and communication modalities under which these crops are developed, regulated and communicated. Desk reviews of policies, institutional and regualtory environment for biotech research and development revealed some similarities and differences.
  - Reciprocal peer-to-peer mentorship 'seeing-is-believing' visits to Brazil, Kenya and Uganda, accompanied by netmapping and communications training were acknowledged as some of the best practices to build confidence with the technology and regulatory process.



Participants of the Brazil biotech study tour in March 2015

#### Some of the key outcomes from this project included:

- Change in negative perceptions and formation of new partnerships
- Call for policy change and commitment to fast-tracking of favourable policies by legislators
- More accurate reporting on biotech issues within EMBRAPA communication staff and increased confidence in engaging policy makers and the media.
- A Material Transfer Agreement entered between Makerere University in Uganda and Michigan State University in the United States of America.

#### The African Biotechnology Stakeholders Forum (ABSF)

- ABSF is a member-based organization founded in the year 2000 by a group of Kenyan Scientists. The forum aims to create an enabling environment in which Africa can participate and benefit from biotechnology in a responsible and sustainable manner. It is recognized by both government and non-governmental organizations as the umbrella organization representing all biotechnology stakeholders in Kenya.
- In the early 2000, AfriCenter forged a collaborative agreement with ABSF to coordinate the Kenya Biotechnology Information Center (KBIC). The biotech information center later grew into the Eastern and Central Africa Biotechnology Information Center (ECABIC), currently hosted by the AfriCenter. During the Biosafety Bill process in Kenya, the two organizations worked closely to co-ordinate biotechnology stakeholders under the Kenya Biotechnology and Biosafety Consortium. AfriCenter continues to work closely with ABSF towards the creation of an enabling agri-biotech environment in Kenya.



In 2013, ISAAA AfriCenter and other partner organisations under the Kenya Biotechnology and Biosafety Consortium worked with ABSF to develop an advocacy strategy and action plan towards lifting of the GM food imports ban in Kenya.

#### **Common Market for Eastern and Southern Africa (COMESA)**

- In 2004, COMESA embarked on a journey to develop regional biosafety guidelines and policies with respect to commercial planting and trade in GMOs and, handling of emergency food aid with GM content. The initiative was under the Regional Approach to Biotechnology and Biosafety Policy in Eastern and Southern Africa (RABESA).
- AfriCenter was among the partners that provided communication support services to the project. Other key partners were the Policy Analysis
  and Advocacy Programme (PAAP) of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA),
  the African Center for Technology Studies (ACTS), and the Program for Biosafety Systems (PBS). The partners helped organise numerous
  engagements and deliberations with policy makers, technical experts and other stakeholders from COMESA member states. The policy
  guidelines were eventually endorsed in 2014.

#### The following knowledge products were developed under the RABESA project;

- Status of Biotechnology Policies and Biosafety Legislation in the COMESA region;
- The RABESA project 2004-2011: Achievements and Future Prospects;
- Modern Biotechnology in the EU:
   Perceptions versus Reality.

The publications can be downloaded from:

http://africenter.isaaa.org/resources/publications/page/2/

# RABESA PROJECT PROGRESS: 2001 – 2014



# **COMMUNICATIONS AND POLICY SUPPORT SERVICES**



"If you want to go fast, go alone. If you want to go far, go together."

African Proverb

Owing to AfriCenter's policy engagement and communications experience and track record, partners frequently contract the Center to partake communications and policy engagement activities in support of their projects. The support offered is aimed at creating a facilitative political environment by providing the evidence base for informed decision making.

The policy engagement and communications services provided include: outreach to policy makers and media practitioners through seeing-is-believing study tours to project's field sites; repackaging and dissemination of the project's IEC material to project value-chain players; capacity building workshops for key stakeholders on effective science communication, as well as pairing of scientists with journalists to ensure accurate and balanced reporting of project activities. Essentially, *Afri*Center facilitates development of a demand driven communications strategy for the project that serves as a blueprint for policy engagement and outreach.



AfriCenter's Director Dr. Karembu looks on as Malawi agri-biotech experts map out their stakeholders

The Center also conducts net-mapping exercises that help projects identify their key stakeholders using an advanced tool for optimal use of communication resources. The activity, which is essential for guiding strategic communications and outreach plans, helps organisations determine key actors involved in safe development, acceptance and commercialization of biotech crops; how they are linked; how influential they are; and their goals and interests. Determining these linkages helps in deriving ideal strategies on how to promote best practices and build confidence in safe development, acceptance and commercialization of biotech crops the team to set priorities and identify where resources are best invested.

A number of AfriCenter staff are certified to facilitate net-mapping sessions. The Center has conducted stakeholder net mapping workshops for the OFAB network in Kenya, the Malawi Biotechnology and Biosafety Consortium, as well as for the Brazilian Agricultural Research Coorporation (EMBRAPA) project, among others.

# The Water Efficient Maize for Africa (WEMA) Project

The AfriCenter provides communications support to the WEMA project. It has conducted science communication trainings for the project's principal investigators and management team. The objective of these trainings was to equip WEMA scientists with effective skills to communicate about the project and enhance their media relations skills.

The WEMA team was also trained on how to design and package comprehensive communication briefs for various interest groups. In 2015, *Afri*Center together with partners undertook a series of outreach activities for policy makers in Kenya. This was prompted by a request from the National Biosafety Authority (NBA) for public comments on an application for open field cultivation of genetically engineered maize under the WEMA project.

## The Virus Resistant Cassava for Africa (VIRCA) Project

*Afri*Center was invited by the Donald Danforth Plant Science Center to participate in development of a communication strategy for the project. The strategy guides the project's policy and outreach activities and aims to ensure that stakeholders within the cassava sub-sector value chain are sensitized on VIRCA products. These include scientists, regulators, policy makers, media, farmers, processors and the general public in Uganda and Kenya. ISAAA *Afri*Center continues to provide communications and policy support to the project.



Dr. Murenga Mwimali, a KALRO scientist and WEMA project co-ordinator speaks to journalists during a field visit to the project's confined field trials



AfriCenter documents the project's activities for wider distribution. Here, the Center was documenting the safe transfer and handling of transgenic cassava plantlets from the BecA lab at ILRI to KALRO's Biotechnology Center

# **Biosciences Innovation Policy Consortium for Eastern Africa** (BIPCEA)

The AfriCenter provided policy outreach and communications support to the BIPCEA project, which was implemented in 5 eastern Africa countries; Ethiopia, Kenya, Rwanda, Tanzania, and Uganda. The project was funded by the BioInnovate program, a multidisciplinary, competitive funding mechanism for biosciences and product-orientated innovation activities in eastern Africa.

The BIPCEA project identified and evaluated policy support needs of projects funded under the BioInnovate program, established a platform for interaction and exchange of ideas on bioscience innovations and policies in eastern Africa, and provided policy support tools for biosciences innovations and related activities in the sub-region.



Dennis Galava, a Kenyan journalist, training project team on effective media engagement.

# **The Bt Cowpea Project**

*Afri*Center provided guidance and input towards development of a communications strategy for the Bt cowpea project. This was under an institutional collaboration service agreement with AATF who are supporting the project. The communication strategy was drafted at a project partners meeting in Ouagadougou, Burkina Faso, in 2008. Refinement of the strategy was done in a science communication training workshop for scientists and technical staff project in Abuja, Nigeria. Staff and team members from the different institutions involved in the project from Burkina Faso, Ghana, Kenya and Nigeria participated in the interactive training workshop. Various message maps to address stakeholder concerns were developed.



A message map on food and feed safety of by the Bt Cowpea developed by the project team during the training.

# **DEVELOPMENT COMMUNICATIONS RESEARCH**



"If you close your eye to facts, you will learn through accidents"

African Proverb

In Africa, there is limited scholarly work that has analysed the role of the media in framing the subject of agricultural biotechnology. Yet, studies largely from the global north suggest that consumers who had heard or read about GM crops obtained the information primarily from mass media and newspapers in particular. Undoubtedly, science communicators would benefit from results of such studies. These would provide an empirical basis for the development of appropriate strategies for effective media engagement. In order to assess the quality of agri-biotech reporting and identify the suitability of the tools used to inform the public, *AfriCenter* embarked on two major studies.

## Establishing the Quantity and Quality of Agricultural Biotechnology Coverage in the Media

To understand the prevailing status of agri-biotech and biosafety reporting in Kenya, *AfriCenter carried out a content analysis of two major local daily* newspapers, the *Daily Nation* and *The Standard*, and one regional weekly newspaper, *The East African*. The study was undertaken between April 2006 and December 2007. It coincided with heightened interest in agri-biotech and biosafety issues during the debate on the Biosafety Bill in the country.

The objectives of the analysis were to:

- Determine the quality and frequency on coverage of agri-biotech and biosafety issues;
- Compare and contrast coverage of agri-biotech and biosafety issues by Kenya's two major daily newspapers the *Daily Nation* and *The Standard* and their sister papers;
- Determine journalists' key sources of agri-biotech and biosafety information and identify key agri-biotech reporters in Kenya;
- Utilize the information gathered to guide implementation of a radio project on utilization of radio for communicating agri-biotech and biosafety, discussed later in this section.

Study findings revealed that agri-biotech and biosafety is not adequately covered to enable appropriate public understanding of issues. This was demonstrated by the inadequate allocation of space and poor placement of the articles. Only *the Sunday Standard* had a regular column. Prominence of crop biotechnology articles, which is indicated by the length and placement of articles, was low.

**0.2%** The editorial space given to agri biotech articles between April 2006 and December 2007

#### **Study Recommendations**

- Enhancing journalists' knowledge on agri-biotech and biosafety to increase accuracy of articles
- Promoting of investigative journalism on science stories
- Regular monitoring of agri-biotech coverage to ascertain effectiveness and impact of articles and/or programs on public understanding of the technology
- Strengthening of science journalists' associations to attract and retain talented and competent writers
- Sensitization of editors on agri-biotech and biosafety to build appreciation of the technology in order to prioritize its coverage.

## Assessing Utility of Radio in Communicating Agricultural Biotechnology in Africa: Case Study of Burkina Faso and Kenya

This was a two-year project that commenced in September 2008 and concluded in April 2011. The goal of the project was to assess utility of radio in communicating agri-biotech among specific stakeholder groups in two African countries - Burkina Faso and Kenya. The project helped in understanding the significance of radio programming to specific development outcomes and has served to inform other agricultural radio-mediated programming initiatives.

#### How we did it:

- Desk reviews and situational analysis to document past and current practices in radio use;
- Cross-sectional and longitudinal surveys to compare radio with other communication modes and their influence on perceptions about agri-biotech and biosafety;
- Participatory discussions to identify and analyze how different stakeholders were served or affected by different sources of information;
- Three-month experimental radio campaign aimed at imparting knowledge on agri-biotech and biosafety.

Radio programs were aired in 6 vernacular radio stations - 3 in each country. Program content was updated by findings of various participatory approaches employed in previous project activities and was moderated by a panel of experts or knowledge partners engaged for this purpose. A control group was incorporated to gauge degree of change on a set of cognitive, attitudinal and behavioural attributes after exposure to the radio campaign.



This is how we do it, or so says a farmer during a focus group discussion in Burkina Faso.

AfriCenter staff conduct one of the focus group discussions in Kenya

Did you know 13 February is World Radio Day? On 14 January 2013, the United Nations General Assembly formally endorsed UNESCO's proclamation of World Radio Day. • Farmers believe radio content as gospel truth

Key Findings

- More households depend on radio to get news and information than television, newspapers and the internet combined.
- Credibility of the presenter has a great impact on the number of people who tune in.
- Farmers preferred tuning in to programs between 7pm and 9pm whereas extension officers and researchers preferred the programs aired on weekends in the afternoon.
- Farmers preferred programs broadcast in their vernacular language.
- There is need to translate some technical terminologies commonly used in agri-biotechnology in vernacular terms
- After the radio campaigns, knowledge on agricultural biotechnology increased and attitudes changed for the better.
- Availability of mobile phones and internet penetration highly reinforced farmers' interaction with radio presenters during the campaign period.





Dr. Waturu, Principal Investigator of the Bt cotton project in Kenya on national radio during the campaign

To download this research brief, visit: http://africenter.isaaa.org/wp-content/uploads/2015/05/ ISAAA-Africenter-Radio-Research- Brief-2011.pdf

Several publications including a paper in the *Journal of Communication and Media Research* 

# OUTCOMES



More airtime for agricultural biotechnology programs that have been availed beyond the campaign period.



Increased confidence among scientists and radio producers who participated in the experimental radio campaign with many expressing willingness to participate in subsequent radio programs.

# **EMPOWERING SMALL-HOLDER FARMERS TO MITIGATE FOOD INSECURITY**



"A farmer does not boast that he has had a good harvest until his stock of yams lasts till the following harvest season."

African Proverb

Just like a mountain climber's journey is incomplete without getting to the peak, our work at *Afri*Center would be incomplete without delivering the benefits of biotechnology tools to farmers and in the process, contributing to poverty alleviation. ISAAA believes that this can best be achieved by facilitating the transfer of appropriate crop biotechnology applications to developing countries. An important component of this program is to strengthen the capacity of stakeholders to evaluate, regulate, and deploy these new technologies safely and responsibly.

AfriCenter has, over the last 12 years, developed unique and cost-effective technology transfer models that are now being emulated by others to accelerate acceptance and uptake of biotech tools. These include the *Tissue-cultured Banana pilot project* and the *Tree Biotechnology Program*, both of which have been very successful and widely adopted by farmers within the eastern Africa region.

# Tissue Culture Banana Project

Considered one of *Afri*Center's flagship initiatives, the project aimed at disseminating tissue culture (TC) technology to improve banana productivity and its competitiveness. ISAAA initiated this project in 1997 in partnership with then KARI now KALRO. The principal goal of introducing TC technology into the banana sub-sector was to mitigate production constraints associated with lack of disease-free planting material.

The ISAAA-led program has been recognized worldwide. In 2002 and 2006 the project was declared the 3rd and the best project during the eighth and tenth KARI Scientific Biennial conferences, respectively. The program had earlier (2000) received a First Place Medal of the prestigious Global Development Network (GDN) Awards for Science and Technology for Development, an initiative of The World Bank and Government of Japan.

One of the conspicuous performance indicators of the project was the extent to which the livelihoods of adopting communities transformed. Incomes from banana sales rose by more than 38 per cent, resulting in increased household incomes, food security and improved livelihoods. Close to 100,000 farmers benefitted from this initiative.

The project also facilitated development and publication of two manuals: How to Establish Tissue Cultured-Banana Hardening Nurseries and Tissue Culture Banana Farming. A policy brief titled Enhancing the Diffusion of Tissue Culture Banana to Small-Scale Farmers in Kenya was also produced.

To download these publications, visit: http:// africenter.isaaa.org/resources/publications/ page/2/



Farmers and partners being educated about TC bananas

# The Tree Biotechnology Programme Trust (TBPT)

In Africa, one may have food but lack the fire to cook it. This is mainly caused by the overwhelming dependence on fire wood in both urban and rural communities, resulting in rapid depletion of forests on the continent. The problem is further compounded by lack of fast-growing seedlings to counter demand.

In an effort to respond to this problem and in consultation with relevant stakeholders, a clonal tree project entitled "Tree Biotechnology Project" (TBP) was initiated in Kenya in 1997, and later expanded to Uganda and Tanzania in 2000 and 2003, respectively. ISAAA brokered the technology from Mondi Forests company in South Africa. The project transformed into a Programme Trust aimed to improve the socio-economic status of local communities through deployment of fast-growing multi-purpose trees while safeguarding the environment.

Between 2008 and 2011, AfriCenter supported this programme by:

- Generating and disseminating knowledge products including a video on "Restoring Lost Cover" which was widely distributed to various stakeholders. The video documents efforts of the Tree Biotechnology Programme-Trust (TBP-Trust) to meet the growing demand for quality trees and tree products in the eastern and central Africa region.
- Training nurserymen and entrepreneurs on establishment and management of superior tree nurseries. The course aimed at reducing technical, business management, and financial barriers, towards development and growth of small and medium forestry enterprises. Since the start of the training in 2007, more than 120 clonal propagators were trained and certified with over 50 nurseries established.

The project's success was attributed to strong public-private partnerships. *Afri*Center has been a partner in all efforts of the tree biotechnology project and currently serves on the TBPT board.



A staff of the TBPT team sorting and grading seedlings

# The Bamboo Regeneration Project

The bamboo regeneration project was a partnership project between *Afri*Center, Kenya Forest Research Institute (KEFRI), Jomo Kenyatta University of Agriculture and Technology (JKUAT) and the Tree Biotechnology Programme Trust (TBPT). It was funded by the National Council for Science and Technology (NCST), now the National Commission for Science Technology and Innovation. The project was implemented between 2010 and 2011.

The project's goal was to regenerate and domesticate edible bamboo varieties available in the country and expand the food security base while stemming the tide of deforestation in Kenya. The activities entailed:

- Identification and selection of edible bamboo species that would grow well in different parts of the country.
- Development of protocols for regeneration of at least two edible varieties.
- 3. Establishment of nutritional composition of the shoots from selected varieties.

Exploratory surveys that included focus group discussions were conducted in two major bamboo growing areas of Kenya. The surveys investigated the ranking of bamboo in comparison with other crops and varieties grown. Other variables taken into account included: uses of bamboo, value addition, marketing, knowledge on bamboo shoots for consumption, willingness to consume bamboo shoots and gender issues in the production and utilization of bamboo.

During the survey, shoots of edible bamboo species were collected for nutritional analysis and establishment of demonstration trials. Key informant interviews were also conducted with chefs and proprietors of hotels and restaurants within Nairobi, to find out how many offered cuisines with bamboo shoots. If they did, the frequency of serving this dish, the source of the shoots and how the bamboo shoots were prepared was established.

The results of this study indicated that there were efforts towards the domestication of bamboo by the Kenyan government. Consumption of bamboo shoots had also been introduced to some communities in and around Mt Elgon in western Kenya. Sun drying and smoking of the shoots, taken as a vegetable, was common. However, domestication was very slow, especially as an alternative food source. This was attributed to limited public awareness about the benefits and the versatility of bamboo.

Hotels in and around Nairobi were offering cuisines which included bamboo shoots although it was a slow moving item on the menu. The shoots were imported from as far as Japan at a very high cost. A few hotels and restaurants expressed interest to include bamboo shoots in their menu if they could get them locally.



Project team members digging up bamboo shoots

Utilization of local bamboo as a food would open an avenue for farmers to earn more from bamboo trees, raising their economic power. Existence of a market for shoots opens opportunities for bamboo produced locally to become a new sector that generates income for people, mainly women, involved in their harvesting, smoking and trading.

#### **The Pumpkin Project**

This was a partnership project between *Afri*Center, Kenyatta University, South Eastern University College, and the Kenya Industrial Research and Development Institute (KIRDI). The project, which ran between June 2011 and June 2013, was on optimizing pumpkin production and value-addition for food security and climate change mitigation in Kenya. It was funded by the National Council for Science and Technology (NCST) under a competitive grant.

The importance of pumpkin as a major food crop in Kenya is increasingly being recognized mainly due to increased knowledge about its nutritional value and ease of cultivation in several agro-ecological zones. Pumpkin was traditionally considered a "poor man's food", but it is now a highly priced commodity in urban areas. It is particularly important in most semiarid areas of Kenya, providing food when other crops are unable to thrive.

In the face of changing climatic conditions, pumpkin production is therefore being promoted due to its ability to adapt to increasingly stressful growth environment and changing climatic conditions.

Despite these positive attributes of pumpkin and the growing commercial interest, its yield is still very low in the country. Lack of quality varieties, poor crop management and threats of pests and diseases contributed to this state of affairs. Thus the overall objective of the project was to enhance yields through improved production and value addition.

The Center conducted a baseline and market survey to establish pumpkin varieties grown and the socio-cultural and economic issues related to pumpkin production, market opportunities, product price, competitors, distribution, and seasonal effects. Farmer/trader preferred qualities (size, color, growth habit, yield, cooking quality, fruit cost and availability) were also assessed. *AfriCenter* took the lead in the dissemination of research results to farmers through participatory approaches.



#### **Challenges and Cause for Optimism**

Year 2015 marked the 20th anniversary (1996 – 2015) of commercialization of Biotech/GM crops. Paradoxically, the concerns most African Governments have on GM technology still persist. These concerns relate to the possible adverse effects on human health, environment, and the fear that adoption of biotech/GM crops may jeopardize exports of conventional agricultural products to the EU market.

AfriCenter has repositioned itself to address these challenges by working towards countering the rising misinformation used to vilify agri-biotech. To strengthen our knowledge sharing initiatives and identify best bet practices towards improving agri-biotech and biosafety communications, the Center hosted the International Conference on Agri-Biotechnology and Biosafety (ABBC) in 2015. The 2-day conference brought together 157 delegates from 30 countries and provided an excellent opportunity for dialogue among the global citizenry. Some of the best-bet practices proposed included:

- Effective use of mass media
- Simplifying language to reduce jargon
- Use of storytelling techniques
- Integrating social media with traditional media
- Basing messaging on human values and beliefs

ABBC 2015's outcomes will undoubtedly play a key role in informing future communication strategies for greater impact. Positive developments realised over the last decade are a cause for optimism. Aside from the three countries (South Africa, Burkina Faso and Sudan) that commercialized biotech crops, by 2015, 8 countries conducted trials on traits of relevance to African challenges.

As a result, Africa could contribute 5 new biotech crops to the global basket in the coming years.

The biosafety regulatory landscape also recorded significant developments. In 1998, South Africa was the only country with a biosafety law. Since then, 19 African countries have developed their biosafety legislation. In 2015, Africa's most populous country, Nigeria, enacted its biosafety law in readiness for tapping into the technology's benefits. In the same year, Kenya's National Biosafety Authority for the first time received two applications for open field cultivation of genetically modified maize and cotton. Initiatives to operationalize biosafety laws in other countries as well as regional biosafety harmonization efforts are ongoing.

Media interest on agri-biotech and biosafety is increasing and the technology is slowly becoming a public agenda item. More importantly, there are more balanced articles and Africa's social media presence on agri-biotech and biosafety matters is increasing. Due to the growing number of champions, the continent has witnessed a surge in policy pronouncements. There is also heightened awareness among farmers as a result of intensified grassroots outreach.

However, the upsurge of aggressive activism against the technology and threats across Africa by GMO critics signifies the huge task ahead for AfriCenter and her partners in intensifying knowledge sharing and policy outreach moving forward.

#### [ Staff Profile ]



#### Dr. Margaret Karembu, Director, ISAAA AfriCenter

Dr. Margaret Karembu is the Director of ISAAA *AfriCenter*. She also serves as the Chair of the Open Forum on Agricultural Biotechnology (OFAB) Programming Committee, Kenya Chapter and as a Communications and Policy Outreach Advisor for the Program for Biosafety Systems of IFPRI. Dr. Karembu holds a PhD in Environmental Science Education and a Master's Degree in Education from Kenyatta University. Prior to joining ISAAA, Dr. Karembu was a Senior Lecturer at the Faculty of Environmental Studies, Kenyatta University from 1992-2003. She has extensively published, authored and co-authored various books,

papers and policy briefs. Dr. Karembu is passionate about science communication education, having received early training in science teacher education from the premier Kenya Science Teachers College. She is a strong believer in the potential of science and technology in advancing Africa's development agenda and more so application of biotechnology to make farming more efficient. She is involved in various initiative in the region aimed at strengthening capacity for science and biosafety communications as well as policy outreach for informed choices.



#### Dr. Faith N. Nguthi, Senior Program Officer

Dr. Faith Njeri Nguthi joined ISAAA in 2009 as a Senior Program Officer. She assists the *AfriCenter Director* in managing and implementing ISAAA's mandate within the continent. Specifically, this includes coordinating implementation of ISAAA-facilitated projects in Africa, including needs assessment, capacity building of biotech stakeholders in communications, knowledge-sharing, initiating institutional linkages and strategic partnerships, resource mobilization as well as staff recruitment. Dr. Nguthi has a PhD in Social Science from

Wageningen University in the Netherlands. She also holds an MSc in Horticulture and a Bachelor of Science degree in Agriculture from the University of Nairobi. Prior to joining ISAAA, Dr. Nguthi worked as a Senior Research Scientist with the Kenya Agricultural Research Institute (KARI, Thika) from 1987-2008. She was also the Deputy Center Director at KARI Thika from 1996-2003. She has published widely, having authored various books and briefs on crop biotechnology. Dr. Nguthi is particularly passionate about disseminating innovative agricultural technologies to the African small scale farmer with the objective of improving their welfare.



#### Anne Mukuna, Administrative Assistant

Anne Mukuna is the Administrative Assistant at ISAAA *AfriCenter*. She holds a Diploma in Business Administration and Management from Kenya Institute of Management. She is principally responsible for managing the diary of the *AfriCenter* Director. She is principally responsible for managing the Director's diary. Anne also oversees general office management, management of transport services, and events organization among other administrative duties. She is all about order and efficiency and strongly believes in the adage 'failing to plan is planning to fail'.



#### Anthony Nderitu, Accountant

Anthony Nderitu is in charge of finance and administration at ISAAA *AfriCenter*. He is a trained and certified Public Accountant with vast experience in international financial reporting and forensic audit. He is a graduate from the Kenya College of Accountancy and is passionate about numbers and farming.



#### Bibiana Iraki, Program Officer

Bibiana Iraki joined ISAAA *AfriCenter* in 2015 as a Program Officer. She holds an MA in Journalism from University of Wales, Glamorgan, and a BSc in Biotechnology from Cardiff University. Bibiana handles various communications related duties at the *AfriCenter*, key among them production of IEC materials, capacity building of key biotech stakeholders on science communication and online communications. Prior to joining ISAAA, she worked as a Communications Officer at the African Population and Health Research Center and

the African Biotechnology Stakeholders Forum. She has also worked as a reporter for Exposure Radio in Glamorgan. Bibiana is passionate about science communication which she believes is key in transforming Africa's wealth of research knowledge into tangible solutions for development.



#### Brigitte Umubyeyi Bitta, Program Officer

Brigitte Umubyeyi Bitta joined ISAAA in 2009 as Program Assistant. She holds a Bachelor of Science Degree in Microbiology, Zoology and Chemistry from Bangalore University, India. Brigitte manages the Biotech Information Centers in East and West Africa, as well as the Secretariat of the Open Forum on Agricultural Biotechnology (OFAB) Kenya Chapter. She also assists in communications duties at the *AfriCenter*. Prior to joining ISAAA, Brigitte worked as a French Instructor at Alliance Française de Nairobi for two years. Before that, she worked at the Kigali Institute of Education in Rwanda as a Tutorial

Assistant in the Department of Biology. Brigitte is currently pursuing an Msc in Agricultural Information and Communication Management at the University of Nairobi. She is passionate about innovation for development and youth inclusiveness in the development agenda



#### Paul Chege, Liaison Officer OFAB Kenya

Paul is the Program Officer in charge of OFAB-Kenya secretariat at ISAAA *AfriCenter*. Prior to joining ISAAA, he worked as a Research Consultant - plant breeding, with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Nairobi. He has also worked as a Crops Manager in-charge of research and development at Gicheha Farms Ltd. Mr. Chege holds an MSc Degree in Agricultural Biotechnology from Szent

Istvan University in Gödöllő, Hungary through a scholarship by FAO and Ministry of Rural Development of Hungary, and a BSc. Degree in Horticulture from Jomo Kenyatta University of Agriculture and Technology (JKUAT). Paul is passionate about the role of modern biotechnology in making agriculture smart and believes science should always have a human face.



#### Doris Wangari, PBS Kenya Country Coordinator

Doris Wangari works as the Program for Biosafety Systems, Country Coordinator. She holds a Master's degree in Biotechnology and a Bachelor's degree, in Medical Microbiology, both from the Jomo Kenyatta University of Agriculture and Technology. Doris previously worked as a Biosafety Officer at the National Biosafety Authority (NBA) in Nairobi and Mombasa for two years. She has a great passion for biotechnology research, which she believes is a key asset for Africa in the new millennium in addressing food insecurity, diseases, environmental pollution and poverty.

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