

## REIMAGINING THE FUTURE

ISAAA AFRICENTER ANNUAL REPORT 2024



airobi, Keny

#### **GET IN TOUCH:**

ILRI Campus, Old Naivasha Rd. P.O. Box 70-00605 Uthiru, Nairobi, Kenya Phone: +254-20-4223618 E-mail: africenter@isaaa.org Website: www.africenter.isaaa.org Facebook: Isaaa AfriCenter X: @afri\_isaaa Linkedin: isaaa-africenter Published by: International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCenter

**Copyright:** International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCenter 2024.

All rights reserved. Whereas ISAAA AfriCenter encourages the global sharing of information in this publication, no part may be reproduced in any form or by any means, electronically, mechanically, by photocopying, recording or otherwise without the permission of the copyright owners.

Citation: ISAAA AfriCenter (2024). Annual Report - Reimagining the Future. Nairobi, Kenya



### **TABLE OF CONTENTS**

Introduction	4
ISAAA AfriCenter's Mandate	5
Message from the Board Chair	6
Message from the Director	7
Communication and Knowledge Sharing	8
Development of Knowledge Products	9
Seeing-is-Believing Study Tours	10
Expanding Engagement through the Africa Science Dialogue Portal	11
Engaging the Media for more consistent Reporting	11
Enhancing Bio-Innovations Ecosystem	13
Expanding Enzyme Manufacturing Masterclass Course	14
Providing Platforms For Innovators to Pitch their Ideas	15
Science Communication and Diplomacy	16
Science Communication Training	17
Participation in Global Negotiations	17
Amplifying Expert Voices towards One Health Solutions	17
Policy and Regulatory Clarity	19
Policy Engagements yielded Breakthroughs	20
Collaboration with Regional Bodies provided Policy and Regulatory Clarity	20
Strengthening Multi-Stakeholder Collaboration	22
Collaboration brought more Success in the Striga-Smart Sorghurm Initiative	23
Rapid Response led to Dismissal of GMO Court Case in Kenya.	23
Strengthening of One Heath Systems in Africa	23
Strengthening Partnerships to maximize Impact	25
Our Partners	26
Challenges and Opportunities	27

## Introduction

Amid Africa's evolving development needs and the intractable challenges of climate change, ISAAA AfriCenter is harnessing its deep expertise and robust networks to respond with purpose and precision. Our work is rooted in a bold vision: To transform African agriculture, promote planetary health, and drive inclusive economic growth.

AfriCenter is a key player in shaping a resilient and innovative agricultural future. We are committed to building an enabling ecosystem that accelerates agricultural transformation, propels the bio-economy, and nurtures a healthier planet for generations to come.

Our mission is anchored in and contributes to global and continental aspirations, particularly the United Nations' Sustainable Development Goals (SDGs) and the African Union's Agenda 2063. We focus on key goals – enhancing food and nutrition security, improving health and wellbeing, advancing environmental sustainability, and strengthening climate resilience.

Through inclusive, multi-stakeholder platforms, AfriCenter champions ethical, science-based bio-innovations to inform policies, energize markets, and realize Africa's vision of a food-secure, healthy, and prosperous future.

### **AFRICENTER'S MANDATE**

### **MISSION**

To provide an inclusive platform that informs Africa's policies and markets on ethical and appropriate bio-innovations.

### **APPROACH**

#### 1. Communication and Knowledge Sharing

• Improving awareness and knowledge on biosciences and planetary health.

#### 2. Enhancing Bio-Innovations Ecosystem

 Providing bio-entrepreneurs with the necessary skills and mentorship opportunities to grow their ventures.

#### 3. Science Communication and Diplomacy

• Equipping Africa's experts with critical skills to effectively engage non-technical audiences.

#### 4. Policy and Regulatory Clarity

 Fostering a more enabling environment for investment and growth in Africa's biosciences market.

#### 5. Strengthening Multi-Stakeholder Collaboration

 Fostering a united, continent-wide push to overcome challenges in Africa's bioscience landscape.

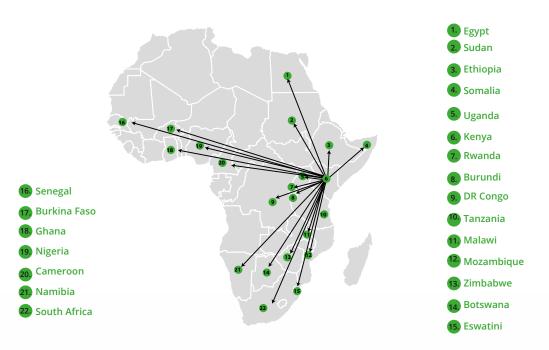
#### 6. Strategic Partnerships

 Creating synergies to maximize impact and optimize resources

### VISION

The leading biosciences' communication enabler for a food-secure and healthier Africa.

### **OUR REACH**



### Message from the Board Chair

Dr. Robert Karanja, Chair, Board of Directors



It is with great honor that I present the ISAAA AfriCenter Annual Report 2024 – a reflection of our collective accomplishments and an inspiration for our aspirations in the years ahead.

Throughout 2024, AfriCenter remained steadfast in its mission to respond to Africa's pressing needs for food security, improved health, and economic resilience. Guided by these priorities, we deepened our impact across the continent, turning challenges into opportunities through innovation and collaboration.

Anchored in our new strategic plan, we intensified efforts to strengthen Africa's bioinnovation ecosystem. By equipping bio-entrepreneurs with tools to navigate the complex bioscience landscape, we are unlocking new frontiers in bio-entrepreneurship. AfriCenter has also grown into a trusted hub for biosciences information, proactively tackling misinformation to foster public trust and informed discourse on biosciences and One Health.

Further, we reinforced policy and regulatory clarity, working hand-in-hand with regional institutions like COMESA and engaging key decision-makers, including the East Africa Legislative Assembly and private sector actors, to shape an enabling environment for Africa's bio-economy.

These strides were made possible by our dedicated team, whose passion and tenacity continue to drive our mission forward. On behalf of the Board, I extend heartfelt appreciation for their unwavering commitment.

To our partners – funders, governments, and collaborators – thank you for walking this journey with us. Your support has been vital in transforming lives and livelihoods. As we look to the future, we do so with renewed purpose and confidence that, together, we will scale even greater heights.

Stead

Throughout 2024, AfriCenter remained steadfast in its mission to respond to Africa's pressing needs for food security, improved health, and economic resilience.

### Message from the Director

Dr. Margaret Karembu, MBS Director, ISAAA AfriCenter



ISAAA AfriCenter remains committed to shaping Africa's biosciences landscape by fostering policy clarity, building public trust, and strengthening collaboration across sectors. Our initiatives continue to create meaningful impact, contributing to Africa's bioeconomy for improved livelihoods and planetary health.

I am proud of our remarkable milestones in advancing biosciences across Africa over the years, including throughout the year 2024. Over the last one year, we have strengthened the bio-innovations ecosystem, championed science communication and diplomacy, and fostered regulatory clarity.

Our initiatives have fostered growing public trust and demand for biotech crops, as evident through increased positive testimonials. Through the Africa Science Dialogue, we strengthened networks among journalists, experts, and stakeholders, fostering a more informed discourse in biosciences. We also empowered students and young professionals by enhancing their bio-entrepreneurial skills to support locally-driven, affordable agrisolutions. This is an important milestone in our quest to shape markets and create job opportunities for the African youth. Our contributions to One Health governance – through strategic policy development in collaboration with partners – reflect our commitment to a healthier planet.

Despite this success, challenges still persist. Misinformation continues to undermine science-driven solutions, slowing behavior change and technology uptake.

Looking ahead, we anticipate an even more impactful 2025, with the African Biennial Biosciences Communication Symposium (ABBC 2025), which will be held in Zambia, expected to provide key solutions to rampant misinformation and disinformation on biosciences and One Health.

I thank our dedicated team, partners, and supporters for their unwavering commitment. We call on you to walk with us in harnessing biosciences for a food-secure, prosperous, and healthier Africa for all.

> We also empowered students and young professionals with bio-entrepreneurial skills to support locally-driven, affordable agri-solutions, an important milestone in our quest to shape markets and create job opportunities for the African youth."

ISAAA AfriCenter (2024). Annual Report - Reimagining the Future. Nairobi, Kenya

7

# Communication and Knowledge Sharing

In 2024, ISAAA AfriCenter intensified its knowledge sharing efforts through a strategic communications approach, addressing diverse stakeholder needs and advancing science-based information access amid a rapidly evolving science landscape across the developing world. This effort underscores our commitment to bridging knowledge gaps and fostering informed dialogue on biosciences and One Health.

### **Our Interventions**



Development of simplified knowledge products



Seeing-is-believing study tours



Expanding engagement through the Africa Science Dialogue portal



Engaging the media for more consistent reporting on biosciences and One Health

### **Development of Knowledge Products**

We continued to serve the information needs of diverse stakeholders through our signature knowledge products, including our monthly e-newsletter the DrumBeat, short videos, information briefs, and journal publications. These initiatives ensured timely dissemination of information to diverse audiences, enhancing accessibility and impact.

### **The DrumBeat**

The DrumBeat is a monthly e-newsletter that tells the African science story. The <u>publication</u> amplifies scientific innovations on the continent and nurtures a favorable policy environment.

12

**DrumBeat Publications** 

100,000+

The size of audience reached



### **Short Impact Videos**

AfriCenter highlights science innovations in Africa through impactful short videos. We produced and shared 20 videos on crop biotech and gene technologies. (see the videos here)





### **Journal Publications**

AfriCenter harnessed journal publications to share bioscience and One Health insights, publishing four peerreviewed papers through strategic collaborations with research institutions and experts to advance knowledge and scientific dialogue.



### New Knowledge Products

AfriCenter is building an innovative digital platform to track and showcase Africa's progress in biotech and biosafety. The platform will deliver real-time updates on GMO crop approvals, food and feed product authorizations, and regulatory developments across the continent. Data visualization features will be used to simplify the information and increase its utility.

### Seeing-is-believing Study Tours

Outreach forums and field tours have enhanced public understanding and trust in biosciences across Africa, offering stakeholders first-hand experience that builds confidence and supports the adoption of biotech crops.



Study tours conducted



Members of the East Africa Legislative Assembly (EALA) from the Committees of Agriculture, Tourism and Natural Resources, and Communication, Trade and Investment take part in a study tour of biotech cassava trial site in coastal Kenya.

10 ISAAA AfriCenter (2024). Annual Report - Reimagining the Futur



### African countries reached through study tours

- Kenya
- Uganda DRC
- Ethiopia Tanzania
- Rwanda Sudan

• Burundi

- Nigeria
- **†††††** ††††† ††††† †††††
- **500+** Stakeholders exposed
- Farmers
- Policy makers
- Regulators
- Journalists
- Media editors

### **Expanding Engagement through the Africa Science Dialogue Portal**



As part of our renewed push against misinformation, we leveraged the Africa Science Dialogue portal to share credible, evidence-based science information and foster expert-stakeholder engagement. Through this dynamic platform, we produced a series of podcasts and blog stories, and hosted several interactive webinars, reaching and inspiring over 1000 participants across Africa.

## PODCASTS LAUNCHED

The podcasts bring exciting conversations on science, technology and innovations

### **MEDIA ENGAGEMENT**





A Kenya journalist is feted for her outstanding media reporting on agricultural biotechnology

AfriCenter maintained a strong media engagement through over 20 media events across Ethiopia, Kenya, Namibia, and Zimbabwe, and involving more than 250 journalists. Our strategic media initiatives, including science-media cafés, seeing-isbelieving study tours, and the OFAB media awards. These engagements led to over 80 million positive media impressions. These efforts contributed to increased coverage of biotech and One Health in Africa.



No. of media events held



Positive media impressions KEY IMPACT

More positive testimonials on biotech crops, driving increased public trust and demand for the technology.



Stronger linkages among journalists, experts, and stakeholders through the Africa Science Dialogue.



Improved and accurate media coverage on biotech, reaching 80 million impressions.

Visiting cotton farms and witnessing a flourishing Bt cotton crop is incredibly fulfilling. It inspires enthusiasm and a strong drive to embrace modern agri-biotech innovations. This journey goes beyond plants and science – it's about securing a prosperous future for our people.

Fatma Omar, Post-graduate Biotechnology student, Jomo Kenyatta University of Agriculture and Technology, Kenya



## Enhancing Bio-innovations' Ecosystem

To strategically foster bio-innovations and spur Africa's bioeconomy, ISAAA AfriCenter is partnering with leading African universities to establish two centers of competence in eastern Africa dubbed the Africa Biosciences Hubs (AfriBIOHubs). These Hubs offer shared scientific infrastructure, resources, and expert support designed to accelerate the journey of bio-innovations from lab to market. Over the last one year, AfriCenter has expanded the operations of the hubs establishing mentorship program for bioentrepreneurial guidance and support.

### **Our Interventions**

Masterclass (EMM) course.

Providing platforms for innovators to

**Expanding Enzyme Manufacturing** 

pitch their ideas.

### Expanding Enzyme Manufacturing Masterclass (EMM) Course

The EMM is a short hands-on course that strengthens researchers' capacity to produce essential enzymes for molecular biology including DNA polymerases for PCR. AfriCenter in partnership with Beneficial Bio organized two EMM courses – one in Kenyatta University Kenya, and another in Addis Ababa University, Ethiopia. Fifty-nine (59) biotech students benefited from the course. The students gained invaluable insights into developing reagents and producing enzymes for use in their own lab thus significantly reducing the cost of importing these important research ingredients.





### **Providing Platforms for Innovators to pitch** their Ideas

AfriCenter and its partners provide aspiring bio-entrepreneurs with mentorship and training to help them realize their skills and talents. They also offer pitching opportunities for innovators to showcase their ideas and attract support. A major highlight in 2024 was a pitching event held during a World Food Prize side event, where a participant from Iowa State University's Start-up Factory received special recognition – demonstrating the tangible impact of international partnerships. These initiatives contribute to the development of a robust bio-innovation ecosystem while promoting job creation and economic growth.



Young bio-entrepreneurs and their mentors attending the World Food Prize in October 2024.

The expansion of our EMM program into Ethiopia has opened new frontiers – enabling more aspiring bioentrepreneurs to access cutting-edge training, mentorship, and resources to drive local biotech innovation.

**KEY IMPACT** 



A beneficiary of our bioentrepreneurship training and mentorship program earned recognition at the prestigious World Food Prize event – a testament to the world-class caliber of our capacity-building efforts. EMM program beneficiaries are now formulating critical lab reagents locally – slashing costs, reducing dependency on imports, and building resilient biotech infrastructure from the ground up.

EMM2024 training program has been a transformative experience, exposing us to the practical applications of science, the entrepreneurial mindset, and the power of collaborative learning. It has expanded my technical expertise and ignited a new perspective on the boundless possibilities within the biotechnology field.

Rediet Guta, EMM2024 Participant, Addis Ababa University, Ethiopia

# Science Communication and Diplomacy

In 2024, AfriCenter intensified its strategic investment in science communication to bridge the persistent gap between research and policy across Africa. Recognizing that evidence-informed advice is vital for tackling urgent food, health, and environmental challenges, AfriCenter empowered experts with the skills to engage non-technical audiences, championed science-policy advocacy, and advanced research to strengthen Africa's growing bio-innovations ecosystem

### **Our Interventions**



Conducting science communication training for research scientists



Participation in global negotiations



Amplifying expert voices towards One Health policy solutions

### **Science Communication Training**

AfriCenter conducted seven (7) science communication workshops aimed at strengthening the capacity of diverse stakeholders to communicate effectively and counter widespread misinformation surrounding biosciences. Regulators were equipped with essential skills in biosafety communication, while senior technical experts and government advisors in Kenya and Zambia were trained to identify and support their governments in addressing bioscience-related misinformation. Early-career scientists received training in effective science communication and were empowered to serve as key advocates for bioscience advancement. Additionally, members of national academies and sorghum experts from Kenya and Ethiopia were capacitated in science communication.

### Participation in Global Negotiations

AfriCenter participated in the Conference of the Parties serving as the Meeting of the Parties (COP16) held in Cali, Colombia in 2024. We lead efforts to prepare African delegates and early-career professionals for engagement. effective Through the African Short Course on Agrobiosciences (AfSCA), we continue building capacity in biosciences, harmonizing regional positions, and ensuring impactful African participation in global biodiversity and biosafety negotiations.

### Amplifying Expert Voices towards One Health Solutions

AfriCenter, through the Capacitating One Health in Eastern and Southern Africa (COHESA) project, strengthened the capacity of One Health experts to advocate for stronger policies across Africa. We enhanced net-mapping skills among experts in Uganda, Zambia, and Malawi. Additionally, our participation in the World One Health Congress amplified Africa's voice in global One Health discussions, keeping the continent's priorities on the international agenda. Notably, we supported the establishment of One Health systems in 10 countries and the Tanzanian One Health Parliamentary Alliance.



Regulators from the Kenya National Biosafety Authority with facilitators during a biosafety communication workshop held in Nairobi in May 2024



Participants during a side event organized by ISAAA at COP16



ISAAA AfriCenter Director meets Members of Tanzanian Parliament during a One Health meeting

### 1000+

Stakeholders trained in science communication and diplomacy



Countries reached

KEY IMPACT

A credible network of science-policy champions established to drive evidence-based advocacy in biosciences and One Health.



One Health systems across 10 eastern and southern African countries strengthened for improved health security.



Parliamentary Alliance launched in Tanzania to champion One Health approaches against Antimicrobial Resistance.

Our MPs will champion the One Health approach as a strategic measure to promote the well-being of every Tanzanian while reducing healthcare costs. The One Health approach will help not only the government but even the entire nation to cut on the expenses incurred on health services.

Hon. Dr. Joseph Kizito, Chairman of Tanzania's Parliament

## Policy and Regulatory Clarity

AfriCenter continues to play a catalytic role in shaping a more conducive environment for investment and growth in Africa's biosciences sector. By strategically engaging with regional bodies and offering targeted advisory support to different stakeholders, the Center advanced policy and regulatory coherence. These efforts have facilitated greater uptake of agri-biotech solutions across the continent.

### **Our Interventions**



Policy engagements for favourable bioscience policies



Collaboration with regional bodies for policy and regularity clarity and harmonization

### Policy Engagements yielded Breakthroughs

AfriCenter's proactive engagement with policymakers and regulators has led to ground-breaking advancements in biosafety across Africa. In Kenya, we witnessed a historic win when the High Court dismissed a petition against lifting the 12-year ban on GMOs. This victory was bolstered by our steadfast commitment to providing factual information through strategically convening multi-stakeholders, engaging legal professionals, and facilitating rapid response meetings to address the GMO court hearing. Additionally, Burkina Faso came back to the list of GM crop-adopting countries with approval for cultivation of Bt cotton hybrids.



Hon. Mary Maingi, a member of the Health Committee in Kenya's Parliament, admires a Bt cotton harvest.

### Collaboration with Regional Bodies provided Policy and Regulatory Clarity

AfriCenter reinforced policy and regulatory frameworks by fostering collaboration with regional bodies such as Common Market for Eastern and Southern Africa (COMESA) and providing advisory support to policymakers, including members of the East Africa Legislative Assembly (EALA) and private sector stakeholders. These engagements are expected to strengthen predictable systems that build confidence in emerging bioinnovations across the continent.



Members of the East Africa Legislative Assembly during a study tour in a GM cassava field.

(EY IMPACT

Kenya's High Court's dismissal of the petition against lifting the GMO ban marked a critical legal endorsement for biotech advancement in the country.



The re-introduction of Bt cotton hybrids in Burkina Faso signaled renewed confidence in GM technology, promising to boost cotton yield and enhance farmer livelihoods. 3

EALA demonstrated a strong commitment to harmonizing agri-biotech and biosafety policies in the East African Community.

We acknowledge agri-biotech scientists who have taken a bold step to engage the East African Legislative Assembly with facts amid a raging debate on GMOs.

Hon. Francoise Uwumukiza, Chairperson, Committee on Agriculture, Tourism and Natural Resources, EALA



# Strengthening Multi-Stakeholder Collaboration

ABBC

AfriCenter's unique ability to convene multi-stakeholder platforms, provided opportunities to tackle broader agricultural and biosciences issues. Through inclusive dialogue, knowledge exchange, and strategic alignment facilitated through our platforms – the Africa Women for Biosciences network, the Africa Science Dialogue and the African Coalition for Communicating Genome Editing – the Center fostered a united, continent-wide push to overcome barriers to adopting bio-innovations.

### **Our Interventions**



**EVOLUTION OF GENETIC** 

INT TOOLS IN

Multi-stakeholder collaboration for strengthening One Health and fostering agri-innovations



Issue management

### Collaboration brought more Success in Striga-Smart Sorghum Initiative

AfriCenter, through the African Coalition for Communicating Genome Editing, convened key partners – including the African Agricultural Technology Foundation (AATF), Kenyatta University, Ethiopia's Bio and Emerging Technology Institute (BETin), Addis Ababa University (AAU), and Beneficial Bio – to develop Strigaresistant sorghum. This promising crop, now in field trials in Kenya and Ethiopia, aims to shield smallholder farmers – especially women – from devastating yield losses caused by the parasitic Striga weed, which can wipe out entire cereal harvests.



Partners in the Striga-smart sorghum initiative plant improved seeds under field trials.

### Rapid Response led to Dismissal of GMO Court Case in Kenya

In a landmark ruling delivered in November 2024, Kenya's High Court dismissed a consolidated petition challenging the government's decision to lift the ban on GMOs. AfriCenter, through its convening platforms, played a pivotal role by engaging legal experts to support the defense with factual, science-based evidence.

### **Strengthening of One Health Systems in Africa**

As part of the COHESA project, we brought together partners and One Health experts across 10 African countries to collaboratively develop and strengthen national One Health systems. Several of these countries have already established and begun implementing national One Health strategies. These efforts mark a significant step toward fostering a holistic, integrated approach to safeguarding planetary health, thus recognizing the interconnectedness of human, animal, and environmental well-being. KEY IMPACT

Collaboration brought more synergy in Striga-Smart Sorghum initiative as unique expertise by partners propelled the improved sorghum to field trials, a milestone.



Through our convening platforms, diverse voices were amplified and multisectoral collaborations strengthened accelerating sustainable progress.

3

Mentorship was initiated through the Women in Science webinar, where students and earlycareer scientists received guidance and support from seasoned scientists.

I love seeing the lasting impact of convening platforms like the Africa Biennial Biosciences Communication symposium. ABBC has played a pivotal role in driving Africa's agri-biotech progress – congratulations on this remarkable contribution!

**Dr. Hennie Groenewald,** Executive Manager, Biosafety South Africa



## **Strengthening Partnerships to Maximize Impact**

AfriCenter acknowledges the vital role that partnerships play in harnessing diverse skills and expertise to achieve meaningful impact. The Center remains committed to growing its network by building and deepening collaborations with institutions that share its vision in crop biotechnology and other scientific disciplines. These partnership initiatives are strategically designed to enhance the reach and effectiveness of science, technology, and innovation efforts, while ensuring efficient use of available resources.

### **Our Partnerships**

### **ACTESA and ISAAA AfriCenter Sign MoU**

The Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA) signed a Memorandum of Understanding (MoU) with ISAAA AfriCenter to implement the COMESA Biotechnology Implementation Plan (COMBIP).



### **ICGEB signs an MoU with ISAAA AfriCenter**

ICGEB signed an MoU with ISAAA AfriCenter establishing a framework for cooperation and collaboration, enhancing technical and regulatory capacity in science, technology and innovation for sustainable development in Africa.



### **Our Partners**



## Challenges and Opportunities

#### **CHALLENGES**

### **OPPORTUNITIES**

<ol> <li>Gross misinformation – particularly on social media – continues to distort public understanding of bioscience innovations, undermining public trust and eroding confidence in scientific advancements.</li> </ol>	1. Through the Africa Science Dialogue platform, we deliver credible, timely, and systematically structured information that fosters public trust and drives evidence-based dialogue across diverse audiences.
2. Limited local investments hinder Africa's ability to find local solutions to the continent's unique challenges.	2. AfriCenter provides structured systems to incubate bio-innovations, create a favorable investment environment, and build Africa's bio-economy.
<ol> <li>External political and trade pressures, particularly from the Global North, shape regional sentiment and policy on agricultural bio-innovations.</li> </ol>	3. AfriCenter is well positioned to cultivate a strong pool of informed advocates who can engage effectively on the global stage and influence policy, sustain political goodwill, and shape markets. We are committed to fostering Africa's bio-economy through strategic engagement, science diplomacy, and informed negotiation.
<ol> <li>Lack of sufficient opportunities for stakeholders to collaborate have led to fragmented and disjointed efforts in advancing bio-innovations across Africa.</li> </ol>	4. Initiatives such as the African Science Dialogue, the African Women for Biosciences network, and the African Biennial Biosciences Communication Symposium serve as dynamic platforms for multi-stakeholder engagement. They foster strategic collaborations, rapid response mechanisms, and effective issue management across the biosciences landscape.

## Tomorrow belongs to people who prepare for it today.

#### **ISAAA AfriCenter**

ILRI Campus, Old Naivasha Road. PO Box 70-00605 Uthiru, Nairobi, Kenya, Phone: +254-20-4223618 E-mail: africenter@isaaa.org Website: www.africenter.isaaa.org, Facebook: Isaaa AfriCenter, X: @afri\_isaaa

sifester F