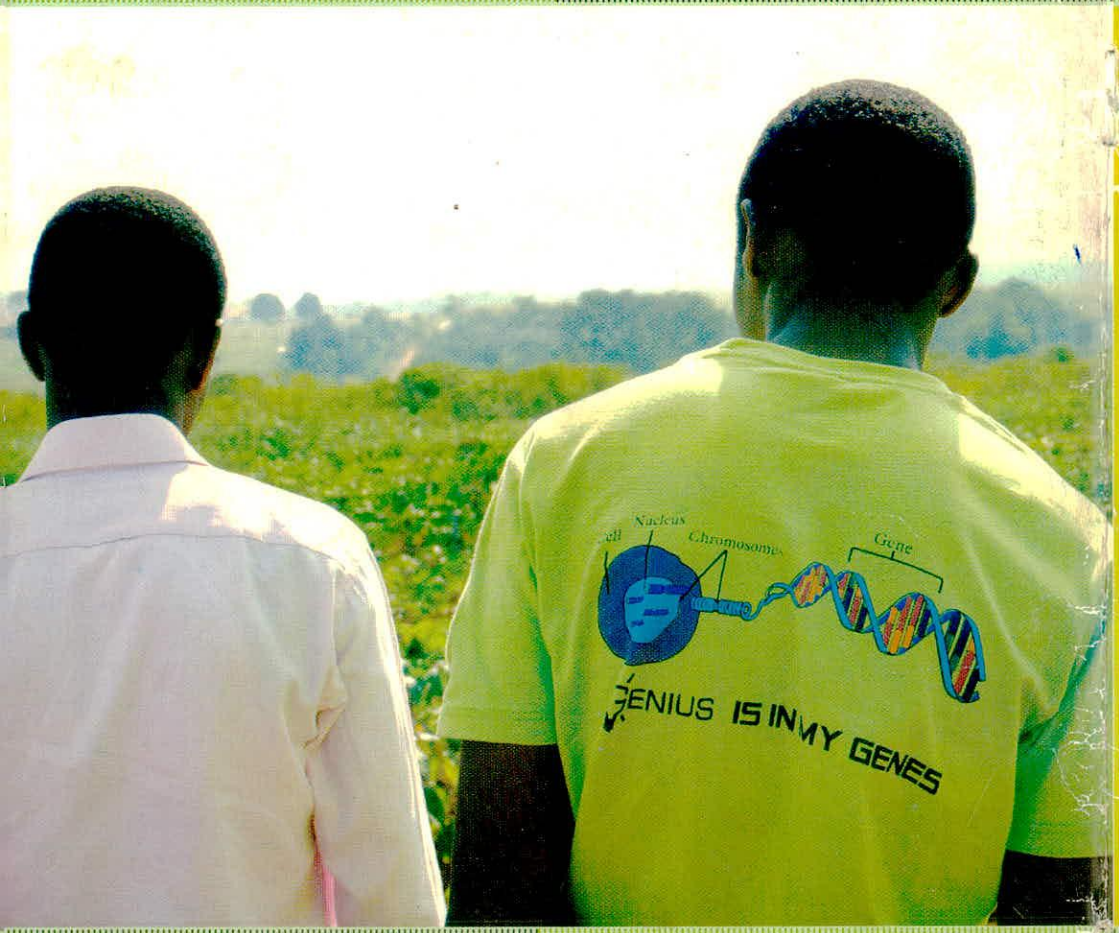
Ubic

Uganda Biosciences Information Center

A hub for information and knowledge sharing on agricultural research in Uganda



Uganda Biosciences Information Center (UBIC)
Hosted at National Crops Resources Research Institute (NaCRRI)
P. O. Box 7084 Namulonge
www.ugandabic.org

@UgandaBIC

facebook.com/ugandabiosciencesinformationcenter

UBICNaCRRI

Ubic

Uganda Biosciences Information Center

A hub for information and knowledge sharing on agricultural research in Uganda







ANNUAL REPORT

AUGUST 2013 TO DECEMBER 2014

NARO

NaCRRI

NEXTGEN CASSAVA

NOTES

Correct citation: UBIC (2015). Connecting Agricultural Research to Society. Annual Report 2013/14. Kampala, Uganda: Uganda Biosciences Information Centre.

© Uganda Biosciences Information Centre (UBIC). All rights reserved

Photography
Dr. Barbara Zawedde Mugwanya
Gilbert Gumisiriza
Nassib Mugwanya
Anita Tibasaaga
Jeremy Veverka

UBIC team
Dr. Yona Baguma- Principal Investigator, NextGen Project
Dr. Barbara Zawedde Mugwanya- UBIC Coordinator
Gilbert Gumisiriza- Research Analyst
Nassib Mugwanya- Outreach Officer
Anita Tibasaaga- Media and Public Relations Officer

Uganda Biosciences Information Centre (UBIC)
National Crops Resources Research Institute (NaCRRI)
Namulonge, 27 km off Kampala-Zirobwe Road
P.O. Box 7084, Kampala, Uganda
Tel. 0414 573016
Email: ubic.nacrri@gmail.com
www.ugandabic.org
Twitter: @UgandaBic
Facebook: UgandaBiosciencesInformationCenter

VISION

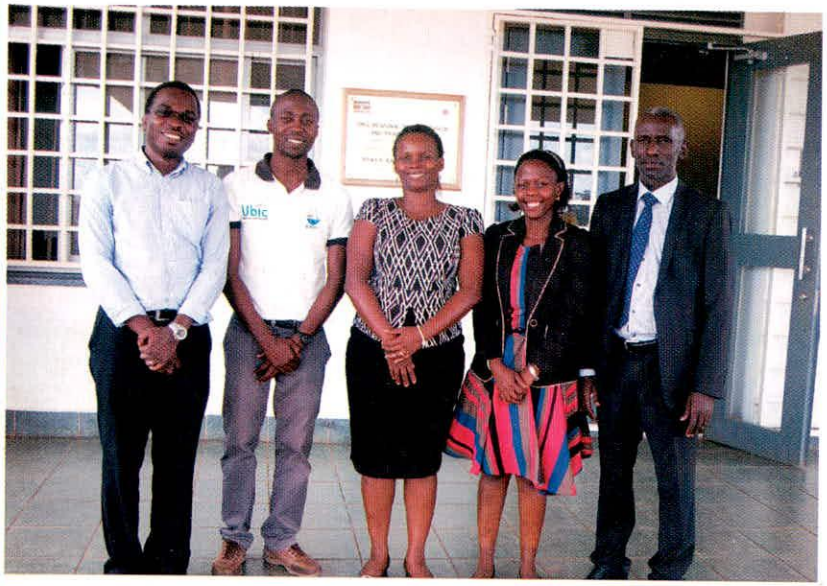
Better agricultural outcomes

MISSION

To foster public understanding of agricultural research for informed decision-making

GOAL

Establish an outreach hub for agricultural research output in Uganda



The UBIC Team: (L-R) Gilbert Gumisiriza- Research Analyst, Nassib Mugwanya- Outreach Officer, Dr. Barbara Zawedde Mugwanya- Coordinator, Anita Tibasaaga- Media & Public Relations Officer, and Dr. Yona Baguma- Principal Investigator- NextGen

6. Grant writing for communication initiatives

Currently, UBIC is funded under the Next-Gen Cassava Breeding Project. However, UBIC will engage grant writing component to secure partnerships and additional public and private funding for outreach and communication efforts aimed at relaying agricultural innovations' information and knowledge to stakeholders and end- users.

1. **Establishing open access helpline**

Specific target groups will be able to contact UBIC directly through a toll-free mobile service. UBIC will then provide feedback or connect them to the relevant agricultural researchers. This system will ensure open lines of communication and delivery of helpful information on agricultural technologies and innovations in real-time.

2. **Establishing regional information nodes**

Regional information nodes are planned for the North, East, South, West, and Central regions of Uganda, in an attempt to bring the service closer to the people. These regional nodes will be embedded in established institutes of NARO and/or universities. They will serve as focal points for regional events, providing information about the needs of their communities, and distributing information and knowledge on new agricultural technologies and innovations suited for the respective geographical zones, in the relevant languages.

3. **Strengthen IT integration in the information generation and sharing processes**

Using information technology is paramount to developing good communication initiatives and so IT will be used to streamline how NARS members communicate with their stakeholders. IT will be incorporated for knowledge-sharing, feedback mechanisms, creation of digital content and use of broadcasting techniques.

4. **Science Communication and Biosafety training**

UBIC is building its expertise to carry out training workshops on science communication and media relations for scientists in the NARS. This activity will equip scientists with skills to talk about their work. UBIC will also help to facilitate training of young aspiring agricultural researchers through school visits and internships on advances in agriculture-related biosciences.

5. **Production of communication manuals**

As a communication hub, UBIC will produce a multitude of information and knowledge-based materials, including leaflets, magazines, books, reports, videos, audio recordings, and training manuals which can be used by educators, policy makers, scientists, journalists, and students, to increase the transfer of knowledge on modern agricultural technologies and innovations. These will be made both for commercial and free-access purposes.



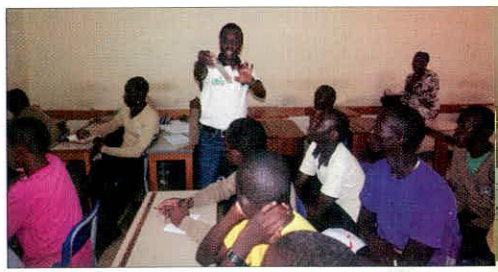
UBIC's Coordinator- Dr. Barbara Mugwanya as MC at the World Food Day celebrations on 16 October 2014 at NaCRRI



Officials and students at the Awards ceremony of the 2nd Biotech Essay writing contest in October 2014 at NaCRRI



Winners from the second Biotech Essay Writing contest during a lab session in their one-week Biotech internship at NaCRRI



UBIC's Research Analyst- Gilbert Gumisiriza conducting a class on DNA extraction at Bishop Cyprian Kihangire School



Dr. Titus Alicai (Center, showing the back) explains to the members of the Forum for Quality Education of Parliament the GM cassava research at NaCRRI, 20th August 2013



Outreach Officer- Nassib Mugwanya (R) addresses farmers during a sensitization forum in Kabale District



Deputy Speaker of Uganda's Parliament- Hon. Jacob Oulanya (L) listens to members of the NaCRRI team during the Parliament Science Week Expo in 2014



UBIC's Anita Tibasaaga (R) hands over some teaching materials donated by UBIC to the National Curriculum Development Center (NCDC)

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS **1**
ACKNOWLEDGEMENTS **2**
FOREWORD **3**
Message from the DIRECTOR, NaCRRI 5
Message from the COORDINATOR, UBIC 6
UBIC'S CURRENT SPECIFIC OBJECTIVES **9**
LAUNCHING UBIC **10**
UBIC MILESTONES IN THE YEAR **11**
Base line survey conducted 11
PUBLIC ENGAGEMENT ON BIOTECH AND MODERN AGRICULTURAL SCIENCES **14**
Engagement with parliamentarians 14
Dialoguing with religious leaders 16
Media platforms usage and exchange 17
Outreach and Community Awareness 18
Community sensitization 18
Exhibitions and demonstrations 20
Information materials' development 21
STRENGTHENING BIOSCIENCES TRAINING IN UGANDA'S FORMAL EDUCATION SYSTEM **23**
UBIC conducts National Biotechnology Essay Writing contests 23
Process of developing biosciences curriculum 26
Biosciences Master classes 26
Donation of teaching aids to national teachers' association Uganda 27
Facilitating knowledge sharing and partnerships among biotech communication partners locally and internationally 28
2nd Biennial NARO Scientific Conference 28
HUMAN RESOURCES CAPACITY DEVELOPMENT **30**
Recruitment of Outreach Officer and Media & PR Officer 30
Video training by Cornell Alliance for Science 30
Communication for Communicators' training 31
Participation in Dow Agrosciences Internship 31
Participation in Risk Communication workshop 32
OTHER ACTIVITIES **34**
Supporting launch of the ISAAA Global Status report 34
UBIC interaction with Uganda Human Rights Commission (UHRC) 34
SUSTAINABILITY **35**
CHALLENGES IN 2013/14 ..... **37**
Intense advocacy against biotechnology 37
Lean staffing 37
THE FUTURE OF UBIC **37**
UBIC in 2015 and Beyond 37

CHALLENGES IN 2013/14

Intense advocacy against biotechnology

One major challenge was countering and diffusing loads of false information on biotechnology and aspects such as genetic engineering, which was propagated by activists and civil society members opposed to the technology. In Uganda like in many parts of the world, genetic engineering has raised much controversy over its merit, safe production, and application among others. UBIC's work therefore, together with other agricultural communicators, has often been mistaken for blindly advocating for biotech and yet UBIC is mandated to provide information on the advances in biotechnology, its associated benefits and risks, proposed and current biosafety measure etc. to help the public make informed decisions before its adoption.

Lean staffing

UBIC still has a thin core team but with a wide implementation strategy, and very high expectations from the various target audiences and partners. Therefore, most of the center's work is done through partnerships with other communication initiatives.

THE FUTURE OF UBIC

At UBIC, we are committed to a long lifeline of information and knowledge sharing service delivery, sustainability, partnership formation, and dedication to creating connections between the public and agricultural researchers. It is envisaged that UBIC will become a one-stop hub for communication, information generation, and dissemination on agricultural innovations for the entire National Agricultural Research System (NARS), as pointed out in the NARS Act, 2005. The NARS is a cross section of stakeholders in both public and private sectors including agricultural research institutes, universities and other tertiary institutions, farmer groups, civil society organisations, and any other entity engaged in the provision of agricultural research services.

UBIC in 2015 and Beyond

In addition to current activities, UBIC plans to engage in new streams of communication and education avenues to achieve its vision. These include and are not limited to:

5. Scientists and Policymakers Urge Students to Engage on Agri Research
http://www.isaaa.org/kc/cropbiotechupdate/newsletter/default.asp?Date=10/8/2014#12768

6. UBIC Supports Biotech Curriculum Development in Uganda
http://www.isaaa.org/kc/cropbiotechupdate/newsletter/default.asp?Date=9/10/2014#12689

7. NaCRRI-UBIC Holds Awards Ceremony for Maiden Biotech Essay Contest
http://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=12371

8. NARO-Uganda Launches Biosciences Information Center
http://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=11502

9. Uganda Launches 2013 Global Status Report
http://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=12151

The UBIC team is also working in partnership with the Cornell Alliance for Science at Cornell University to expand its activities and ensure continuity of the component beyond this project. Strategies so far include shooting and producing videos from interviews with some of Uganda's agricultural researchers, capacity building in terms of producing videos as well as strengthening communication strategies.

ACRONYMS AND ABBREVIATIONS

CAS	Cornell Alliance for Science
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
IITA	International Institute for Tropical Agriculture
ISAAA	International Service for Acquisition of Agri-biotech Applications
NaCRRI	National Crops Resources Research Institute
NARL	National Agricultural Research Laboratories
NARO	National Agricultural Research Organisation
NAST-U	National Association for Science Teachers Uganda
OFAB	Open Forum on Agricultural Biotechnology
UBIC	Uganda Biosciences Information Center
UHRC	Uganda Human Rights Commission
UJCC	Uganda Joint Christian Council
WFD	World Food Day

ACKNOWLEDGEMENTS

- Bill and Melinda Gates Foundation
- Biotech communication partners in Uganda, East Africa, and globally
- Café Scientique
- Cornell University
- Makerere and Gulu Universities
- Media Houses
- Ministry of Agriculture, Animal Industry and Fisheries
- Ministry of Education and Sports
- National Agricultural Research Organisation (NARO)
- National Curriculum Development Center
- NextGen Cassava Breeding Project
- Science for Livelihoods Foundation and Development (SCIFODE)
- Uganda Biotechnology and Biosafety Consortium (UBBC)
- Uganda Joint Christian Council
- Uganda National Council for Science and Technology

SUSTAINABILITY

Although UBIC operates under the leadership of the National Agricultural Research Organisation (NARO), with funding from the NextGen Cassava Breeding Project, the Center envisages becoming a fully-resourced go-to facility for all communication and reference materials on agricultural innovations in Uganda. This effort will take into account building networks and partnerships with a host of actors including agricultural communicators, government agencies, donors, education institutions and agricultural researchers.

Currently, UBIC is one of the Biotechnology Information Centers (BICs) of the International Service for Acquisition of Agricultural Applications (ISAAA). There are 24 other fully operational national/regional nodes located in three continents; responding to specific information needs, promoting and advancing a broader public understanding of crop biotechnology and monitoring the local agri-biotech environment. Through this network, UBIC contributes to increasing the level of awareness and understanding of biotechnology globally by engaging with the Ugandan public. Routinely, UBIC produces stories on its activities in outreach and communication, which stories are them compiled into the weekly Crop Biotech Update (CBU) or into the monthly Wall@ISAAA bulletin; both of which have a readership in the thousands. In this way, UBIC is able to initiate, build, and sustain strong networks; while relying on a large pool of expertise at its disposal. In the year under review, UBIC produced at least nine articles for the weekly CBU and monthly Wall@ISAAA bulletin. These can be accessed via these links:

1. Biotech Innovations Impress Speaker of Parliament at Science Expo
   http://www.isaaa.org/kc/cropbiotechupdate/newsletter/default.asp?Date=12/17/2014#12984

2. UBIC Organizes Regional Fora on Modern Agro-Biotech Research in Uganda
   http://www.isaaa.org/kc/cropbiotechupdate/newsletter/default.asp?Date=12/10/2014#12971

3. UBIC Conducts Dialogue on Biotech with Religious Leaders
   http://www.isaaa.org/kc/cropbiotechupdate/newsletter/default.asp?Date=11/19/2014#12902

4. Ugandan Legislators Urge Support for Biotech at WFD Celebration
   http://www.isaaa.org/kc/cropbiotechupdate/newsletter/default.asp?Date=10/29/2014#12836

OTHER ACTIVITIES

Supporting launch of the ISAAA Global Status report

UBIC, as a node of the ISAAA BICs, organized the Uganda country launch of the ISAAA Report Global Status of Commercialized Biotech/GM Crops for 2013, held on 28 March 2014 at the Imperial Royale Hotel, Kampala. The launch was presided over by the Minister of State for Agriculture- Hon. Zerubabel Nyiira and it attracted a host of distinguished personalities from government, civil society organizations, research agencies, and the media. Hon. Nyiira stressed that with the right balance of political, industrial, media and scientific leadership, biotechnology could be harnessed to meet the national development aspirations of growing the rural economy, sustainably harnessing Uganda's natural resources, increasing the livelihood of the population.

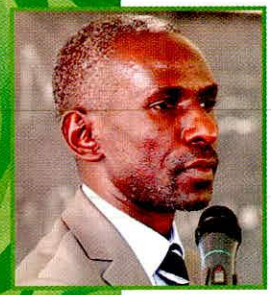
The keynote address was delivered by Dr. Charles Mugoya, Programme Manager- Agrobiodiversity and Biotechnology Programme at ASARECA. He underscored the continuing rise in biotech crop adoption worldwide, with 5 million more hectares of biotech crops grown in 2013 alone, representing a 3% increase in total GM crop hectarage globally.

Dr. Wilberforce Kisamba Mugerwa, the Chairman of the National Planning Authority reiterated the need to embrace scientific innovations in the face of the imminent effects of climate change and a rapidly growing population. There has been an over 100-fold increase in the global adoption of GM crops since their inception in1996 and that they were now being grown by up to 18 million farmers in 27 countries, accounting for a total area of 175.2million hectares.

The event was organised in partnership with OFAB and ISAAA.
The ISAAA Global Status of Commercialized Biotech/GM Crops for 2013 can be accessed online via:
http://www.isaaa.org/resources/publications/briefs/46/executivesummary/

UBIC interaction with Uganda Human Rights Commission (UHRC)

The Uganda Human Rights Commission invited UBIC officials to attend a consultation meeting in March 2014. The meeting was a dialogue on the nature and relevance of the biotechnology and biosafety bill for Uganda. At the meeting, UBIC coordinator explained the relevance of Biotechnology and Biosafety Bill 2012, which is currently being debated in Parliament with the hope of being passed into law. The interaction enlightened the UHRC officials and they appreciated the new knowledge.



FOREWORD

Today, we live in a knowledge economy; and it is no longer enough to compete as nations or to rely simply on what previously-held information we have; but to seek out new discoveries and new knowledge that will advance human kind. Uganda's economy is heavily dependent on agriculture; a sector that currently contributes over 40% to the national coffers, accounts for over 85% of the export earnings, supports a labour force of about 80%, and provides most of the raw materials to agro-based industries, including: coffee hulling, cotton ginning, meat processing, dairy and leather processing, tea processing, textile mills, sugar processing, and soap industries.

This picture is sufficient to justify the need for increased knowledge and reliance on innovations in the agricultural sector in Uganda. The establishment of UBIC therefore was not by accident; but rather a deliberate effort to increase the level of knowledge sharing and information dissemination of agricultural research products and innovations.

The use of new technological processes such as genetic modification of crops and use of tissue cultured planting materials are critical for developing countries such as Uganda to feed their growing national and world populations. Only a decade ago, Uganda's population was less than 25 million, but preliminary results from a 2014 household census show that the population has risen to about 37 million; and according to the United Nations, is expected to grow to about 100 million people by 2050. Moreover, countries are grappling more than ever with a plethora of threats to agricultural productivity, including land stress, climate change effects, crop diseases and pests, unemployment, and food insecurity. The good news however is that many breakthroughs have been made in science, technology and in the knowledge industry. Tools such as biotechnology have been shown to possess immense promise to mitigate some of these problems. In fact, a number of countries in Africa and in the world have embraced biotechnology and genetic engineering, even up to the level of commercialisation, because they recognise its potential benefits and have established mechanisms to manage any risks.

Biotechnology tools are already being used in human health care to produce certain medicines, development of animal vaccines, and to a growing extent, to address environmental challenges. In Uganda,

agricultural biotechnology tools are being tested in NARO institutes, to address the following: Banana Bacterial Wilt disease, Cassava Brown Streak Disease, water stress (for drought tolerance) in maize and rice to mention but a few. Although these improved products are yet to be commercialised, many Ugandans are unaware of the promise of modern biotechnology, its associated benefits and risks. This knowledge vacuum has allowed the proliferation of incomplete and inaccurate information on biotech to fill the public space. For instance, many people now mistake hybrid crops developed through conventional breeding with GMOs and some have even become reluctant to adopting hybrids developed by NARO institutes.

UBIC's existence therefore is to help provide relevant and factual information to Ugandans about agricultural innovations such as biotechnology, because their potential has been widely documented and witnessed elsewhere in the world. Biotech can be one of the stepping stones for our national economy as the country strives to become an upper middle income nation. We need to invest in this knowledge economy and in agricultural transformation so as to arrive at a fairly competitive and strong economy that can support Uganda.

I therefore commend UBIC for accomplishing great achievements in the short period of its existence and I pledge the support of the National Agricultural Research Organisation (NARO) in advancing communication on agricultural research innovations. I sincerely appreciate and acknowledge all UBIC's partners who have been part of realising these achievements.

I thank you and wish you enjoyable reading.

Dr. Yona Baguma
Ag. Deputy Director General- Research Coordination
Principal Investigator, NextGen Cassava Breeding Project
NARO



Team Uganda during one of the group sessions. L-R: Anita Tibasaaga- UBIC, Charles Changa- NARO, and Deborah Kasule- UNCST

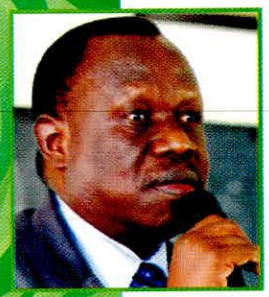
African cassava scientists with an opportunity to participate in training course to enhance their leadership and management skills. The program also enabled the scientists to interact with scientists and regulators involved in specific fields of interest to them.

During the internship, Dr. Zawedde was part of the team that helped to develop pathways for delivery of biotechnology products in Africa. She was also able to interact with DAS teams involved in Biotech Product Development, Commercialisation, Communication and Regulatory Services. The take home messages from these interactions were that before deployment of biotechnology products, African countries need to establish functional regulatory systems and put in place clear and functional intellectual property rights systems for the benefit of the end-users.

Participation in Risk Communication workshop

UBIC's Media and Public Relations Officer- Anita Tibasaaga was one of 30 participants at a workshop on Risk Communication for GMOs which was organised by the International Center for Genetic Engineering and Biotechnology (ICGEB). The workshop was held from 3-5 December 2014 in Nairobi, Kenya. The workshop was held at a time when some African countries have legalised the commercialisation of GM crops, others are debating proposed legislation to introduce GM crops, while others have allowed research on GM crops to go on; all amidst great sensationalism and propaganda against the technology. This workshop therefore focused on enhancing the skills of biotech regulators and communicators in handling risk and crises associated with creating awareness and communicating about genetically modified organisms in their countries.

Participants were drawn from Uganda, Kenya, Tanzania, Ethiopia, Ghana, Nigeria, and Burkina Faso and were trained by seasoned biotech communicators with whom they shared country experiences to help develop better risk communication strategies. ICGEB is an international center with oversight from the United Nations and has conducted numerous training workshops on biotechnology. Suffice to say the participants received worthwhile training which is important and very relevant especially as many of the named countries have recently passed or are in the process of enacting regulation on safe application of GMOs.



Message from the DIRECTOR, NaCRRI

It gives me great pride to write a message in UBIC's maiden Annual Report. I am proud to be associated with UBIC and as Director of NaCRRI, which hosts the UBIC project, I wish to note that UBIC's achievements are also NaCRRI's achievements. I thank the UBIC team for its hard work, passion, and commitment towards communicating agricultural research and for making agricultural innovations count.

I wish to thank NARO for its leadership and oversight of UBIC and its activities. NARO has consistently shown that UBIC is an important component of its agricultural research activities and that knowledge and information are critical for our people to be able to understand and adopt modern agriculture. A case in point is the 2nd Biennial NARO Scientific Conference in November 2014, where UBIC coordinated communication and publicity. In this role, UBIC organised media and public for a for NARO researchers to interact with ordinary Ugandans and so explain to them advances in agricultural research. I am therefore confident that the establishment of UBIC as a hub for agricultural research information production and dissemination will help to amplify public knowledge on what NARO institutes are doing and increase our interaction with the public.

My sincere gratitude goes to the Bill and Melinda Gates Foundation which funds the NextGen Cassava project under which UBIC is a component.

I applaud the Gates Foundation for choosing to support the Ugandan government by investing in modernising agriculture and grooming young scientists. Needless to point out that agriculture is a major life link of Uganda's economy now and in the future.

Congratulations to UBIC for accomplishing these milestones and on behalf of NaCRRI, I look forward to working with the team.

Enjoy reading this report and let's all work together to advance scientific research for agricultural development in our nation.

Dr. James Ogwang
Director, NaCRRI



Message from the COORDINATOR, UBIC

Welcome to the first Annual Report of the Uganda Biosciences Information Center (UBIC). UBIC is a hub destined to become the go-to resource centre for information on agricultural research innovations in Uganda. Through the establishment of UBIC, NARO recognised the need for agricultural scientists to communicate the social significance of their work to both policy-makers and to the public.

When UBIC was launched in September 2013, the core staff, managers, and partners were evidently enthusiastic about the center and what promise it espoused in helping to bridge the gap between agricultural researchers and the public by providing information on agricultural innovations emanating from NARO institutes and partners.

One of UBIC's core tasks was to increase awareness and public understanding of agro-biotechnology and its offshoots such as genetic engineering. Not unlike many other technologies, the use of biotechnology in agriculture had evoked a lot of controversial messages, which are raising anxiety among the public regarding the technology. In a baseline study conducted in 2013/14 to determine the Knowledge, Attitudes and Perceptions (KAPs) towards agricultural biotechnology by the public, findings revealed that 63% of respondents had major concerns about GM crops. Our work therefore has been to work with the scientists to address some of these concerns, and to effectively communicate about their research and how it is or can contribute to providing agricultural solutions. It is important to note that for as long as science and technology is recognised as a critical component for national development, science communication remains pertinent in empowering citizens to make informed decisions about science-based innovations.

In this report, we share some of the strategies and activities implemented by UBIC to enhance public understanding of modern agricultural innovations such as genetic engineering. UBIC has

Communication for Communicators' training

In June 2014, UBIC organized a training on development and implementation of a communication strategy for communication officers from 15 of NARO's institutes. The training was conducted by Scriptoria- a UK-based company that provides specialist writing services and communications training courses to development, research, aid, and environmental agencies worldwide. The communication officers received new knowledge on processing of communicating about agricultural innovations and were equipped with tips and tactics on how to develop effective and relevant communication strategies for difference agricultural programmes. With expert advice and skills from the training, the UBIC team embarked on developing their own communication strategy.



Communication officers and scientists from twelve NARO institutions participated in a Communication strategy development and implementation training organized by UBIC in May, 2014.

Participation in Dow Agrosciences Internship

Two scientist from NaCRRI, Dr. Barbara Zawedde- UBIC's Coordinator and Dr. Robert Kawuki- Cassava Breeder, attended the first-ever one-month Cassava Visiting Scientists Program organized by Dow Agro-sciences (DAS) in Indianapolis, USA in October 2013. Other participants were: Ismail Yusuf Rabi from IITA in Ibadan Nigeria and Emmanuel Okogbenin from the National Root Crop Institutes of Nigeria. The program was organized in collaboration with Cornell University as part of the NextGen Cassava Project, to provide

STRENGTHENING HUMAN RESOURCES CAPACITY

Recruitment of Outreach Officer and Media & PR Officer

In August 2014, UBIC recruited two additional staff to its team: Nassib Mugwanya- Outreach Officer and Anita Tibasaaga- Media and Public Relations Officer. The recruitment came at a time when UBIC needed to implement more activities in its timeline and therefore additional staff were necessary. Nassib is a graduate of Agricultural Extension from Makerere University while Anita is a public relations practitioner with qualifications in Mass Communication and International Relations.

Video training by Cornell Alliance for Science

UBIC is currently working with the Cornell Alliance for Science (CAS), to increase communication and visibility of issues related to uptake and regulation of modern biotechnology and outcomes of agricultural research. This effort was supported by a visit by Jeremy Veverka from CAS who delivered a two week hands-on training of UBIC staff, in video documentation and photography. The training was conducted in October 2014. A number of interviews were held with researchers, students, market vendors, and farmers to get their perceptions on biotechnology and the possible uptake of genetically modified foods in Uganda, as part of attempts to address some core agricultural challenges, including diseases and effects of climate change. These videos will be published on UBIC's website, TV shows, and on a crop-specific portal which will be created by CAS.



Anita Tibasaaga- UBIC's Media and Public Relations Officer gets ready to do some filming during the hands-on training



Snapshot from the video produced on Banana Bacterial Wilt in Uganda, supported by Alliance for Science

been able to accomplish many of its objectives with great support from partners such as the Science Foundation for Livelihoods and Development (SCIFODE), Uganda Biotechnology and Biosafety Consortium (UBBC), Uganda National Council for Science and Technology (UNCST), ISAAA and with astute leadership from NARO. We are very grateful for the support.

I am also heartily grateful to the funders, supporting ministries, schools and universities, as well as staff of NaCRRI for supporting us since our inception. I am profoundly grateful to other members of the UBIC - my colleagues Gilbert Gumisiriza, Nassib Mugwanya and Anita Tibasaaga for the hard work to accomplish these great milestones. I am confident that UBIC will thrive and create greater linkages between agricultural researchers and the public. We commit to continue promoting open communication between agricultural researchers and the Ugandan public.

Thank you for taking the time to read this report and I hope that you will find it useful.

For God and My Country

Dr. Barbara Mugwanya Zawedde
Coordinator, UBIC

EXECUTIVE SUMMARY

This is UBIC's maiden annual report, highlighting the project's achievements over a one-year period and outlining plans for the coming year. This short report is packed with news features and photos to help readers to visualise some of the activities and events that UBIC carried out in the year. Right from the launch of UBIC, through the process of conducting perceptions studies, up to conducting two successful essay contests, this report will form a critical resource material for partners, researchers, and communication practitioners seeking to implement similar activities.

In 2014, UBIC conducted the second round of Biotech Essay contests and got an overwhelming response with 117submissions from twelve secondary and tertiary institutions. UBIC plans to double the number of submissions and participating institutions in 2015 and a Call for Submission of entries will be made in the first quarter of the year.

Also read about UBIC's premier public opinion research and survey to gauge the public's perceptions about biotechnology and genetic engineering. This survey helped to guide UBIC's communication and outreach plans in order to develop relevant and appropriate messages. The survey results also informed the choice of IEC materials developed by UBIC and its partners. Some of these materials have been translated into regional local languages of Uganda and efforts are underway to develop and translate more information messages on agricultural innovations.

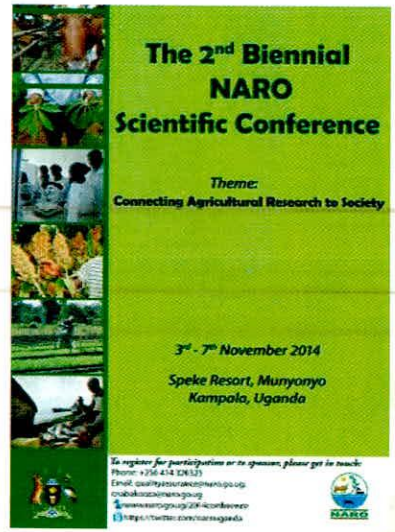
UBIC is also using new media and modern communication technologies to reach out to its targeted audience.





Dr. Ambrose Agona (R)- NARO's Ag. Director General speaks to journalists after the opening of the NARO conference. He is flanked by Agriculture Minister- Hon. Tress BUcyananyandi (C) and Dr. Imelda Kashaija (L)- Ag. Deputy Director General, NARO

On NARO's behalf, UBIC also organised a one-hour talk show on Radio One's highly listened-to talk show- Spectrum. The talk-show was a remarkable platform for NARO officials to sensitize the public on some of the major technological innovations that had been recently released, including drought tolerant maize varieties and improved animal feeds such as Mulato II forage. Members of the public were also able to call in and pose questions, enabling live interaction and setting the pace for future outreach through the media.



The UBIC team developed the conference poster which was used in all publicity publications

FACILITATING KNOWLEDGE SHARING AND PARTNERSHIPS

Facilitating Information sharing among Pro-Biotech communication partners locally and internationally

UBIC, has in the period under review, been invited to a number of national, regional, and international meetings and fora to share experiences and best practices in agricultural sciences communication. Meetings have been held to streamline communication by biotech communication partners in Uganda for example a meeting organized by UBIC in November, 2013.



Participants in the biotechnology communicators meeting organized by UBIC on 20th November 2013. Also in attendance were partners from Cornell University and PBS-Washington DC

2nd Biennial NARO Scientific Conference

UBIC was tasked by NARO, to plan and coordinate publicity and communication for its 2nd Biennial Scientific Conference held from 3-7 November 2014 at Speke Resort, Munyonyo in Kampala. The Conference theme was: Connecting Agricultural Research to Society and so UBIC's work was to reach out to targeted participants and create awareness for the conference and the work of NARO in developing demand-driven research outputs for Ugandans. The UBIC team created posters, organised and participated in radio talk shows, developed TV and radio adverts, newspaper adverts and publications. A video documentary is currently in production to showcase all aspects of the conference as well as consumer and researcher voices on the need to connect agricultural research to society.

UBIC'S CURRENT SPECIFIC OBJECTIVES

1. **Enhancing understanding of biotech and biosafety by influential stakeholders**
   Biotechnology is used by scientists in various parts of the world to develop solutions to farmers' challenges such as diseases and environmental stress. Biosafety then helps to establish regulations for safe development and application of the technology. UBIC's work thus is to help stakeholders such as policy makers, farmers and youth to understand biotechnology, its relevance, and benefits so as to empower them to make informed decisions on its adoption by Ugandans. Other targeted audiences include religious and cultural leaders, scientists and media.

2. **Integration of biotech and biosafety training in formal education programs**
   UBIC is supporting the creation of a bigger pool of experts in biotechnology by collaborating with the National Curriculum Development Center (NCDC) to integrate biotechnology in the training materials for secondary school and tertiary institutions engaged in training of future agriculturalists. Other initiatives include science club sessions and offering internships.

3. **Facilitating streamlined communication by pro-biotech communication partners in Uganda**
   Currently, UBIC has an Advisory role in the Open Forum on Agricultural Biotechnology (OFAB) and Uganda the Biotechnology and Biosafety Consortium (UBBC) in Uganda. Through these advisory roles, UBIC participates in communication planning and strategy implementation to ensure harmonisation and effective delivery of biotech communication efforts. UBIC has also organized strategy meetings for streamlining communication by various pro-biotech communication partners in Uganda.



A participant speaks at a regional forum on agricultural biotechnology in Mbarara town in December 2014

LAUNCHING UBIC

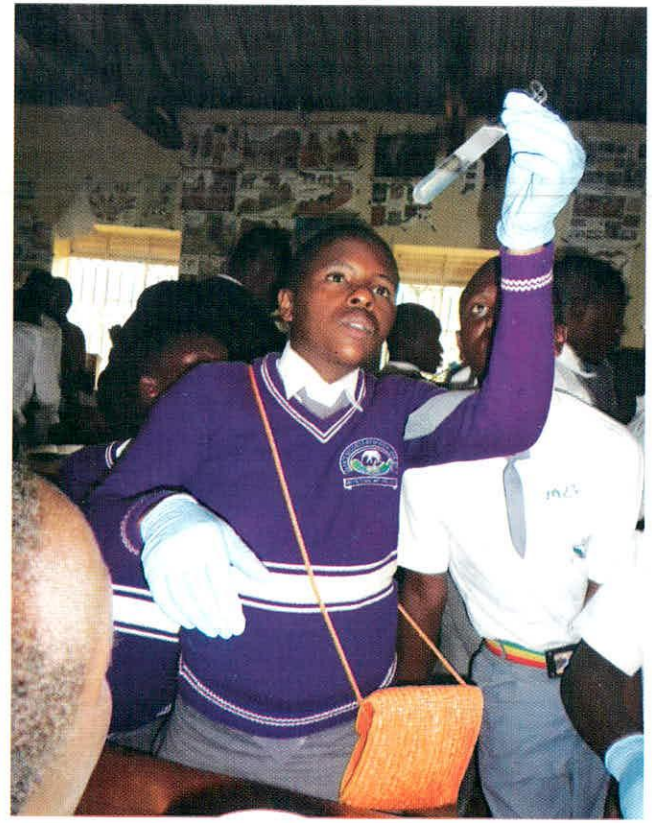
Uganda Biosciences Information Center (UBIC) was launched by the National Agricultural Research Organization (NARO), as a designated reference centre for communication of advances in agricultural research for the NARO in Uganda in September 2013. After its establishment, a partnership between NaCRRI and ISAAA was signed to make UBIC a node for ISAAA's global network of biotechnology information centres spread across Africa, Asia, Europe, and Latin America. As the national go-to place for all biotech information, UBIC was "going to contribute to increasing awareness of the significant steps Uganda is making in modern agricultural biotechnology,". The centre would also to provide a forum for discussing the priorities, benefits and concerns of using the advanced agricultural innovations including products of biotechnology in Uganda.



Dr. James Ogwang (Center, Director of NaCRRI), Dr. Margaret Karembu, the Director of ISAAA AfriCenter and Dr. Barbara M. Zawedde, Coordinator of UBIC after the signing of the partnership between NaCRRI and ISAAA

UBIC was established at a time when Uganda, like many African countries and others in the world are beginning to appreciate technological advances in agriculture, such as biotechnology. But much public sensitization is needed to enlighten Ugandans about the potential benefits of the new technology and its relevance to advancing agricultural production; amidst a flurry of misinformation and emotive messages. Providing balanced and accurate communication therefore is UBIC's role so as to empower Ugandans to make informed choices.

Currently, there are several institutions working on various biotech crops in Uganda; including universities and Public Agricultural Research Institutes (PARIs) such as NaCRRI, where several biotech crops including bananas, cassava, maize, rice are being tested in confined field trials.



A student examines a chemical reaction during the Biotech Master Class in Kabale district

Donation of teaching aids to national teachers' association Uganda

In September 2014, UBIC donated an assortment of teaching aids to the National Association of Science Teachers of Uganda (NAST-U). The materials included: books, leaflets, posters, and pamphlets carried easy-to-transfer knowledge on biotechnology, to facilitate the teaching process. This donation arose out of the increased interest of secondary school students in biotechnology, as evidenced through greater participation in the Essay Writing Contests and through students' eagerness exhibited during the Master Classes.

Process of developing biosciences curriculum

UBIC is working with the National Curriculum Development Centre (NCDC), to develop relevant teaching material for integrating training in modern bioscience in agriculture in secondary schools and tertiary institutions in Uganda. The need for such teaching materials came out of feedback from various biology and agriculture teachers indicating that they were having challenges accessing relevant and simplified versions of teaching materials on modern biosciences such as biotechnology.



Anita Tibasaaga (R)- UBIC's Media and Public Relations Officer hands over assorted biosciences teaching materials to Mr. Mathias Mutema Mulumba (L)- Agriculture Curriculum Specialist at the National Curriculum Development Center in Kampala

Biosciences Master classes

UBIC organized a "Biotech Master class" in July, 2014 Apostles of Jesus Seminary, Bukinda Kabaale, South-Western Uganda, which attracted 140 students and teachers from 11 high schools in South-Western Uganda. The purpose of the Biotech Master Class is to bring together students from different schools in the same region to take part in practical sessions on aspects of modern agricultural biotechnology, including basic DNA extraction. Other school outreach activities included joint collaborations with Café Scientific for secondary schools like Kitante Hill School, Bishop Cyprian Kihangire School in Luzira, and Ndejje Secondary School.

UBIC MILESTONES IN THE YEAR

Baseline survey conducted

In order to guide its outreach and community-based initiatives, UBIC conducted a base line survey to measure Knowledge, Attitudes, and Perceptions (KAPs) in 2013/14. The survey informed UBIC's communication strategy and tactics for delivering effective messages. Twelve districts in Uganda were covered during the survey which pooled **975** respondents. **Thirty per cent** of the respondents were farmers as these are considered to be key targeted users of agricultural research outputs (Figure 1). From the survey, a report on community discussions about their perceptions and knowledge of biotechnology as well as their preferred channels for communication was drafted, is currently being reviewed and will be launched in February 2015. However, preliminary findings have been useful in guiding how UBIC communicates with the surveyed groups. The survey will also support harmonization of communication efforts developed by NARO biotech projects and other biotech communication partners in Uganda. Key results showed that **63%** of respondents expressed concerns about genetically modified (GM) crops especially in relation to human health issues (Figure 2).

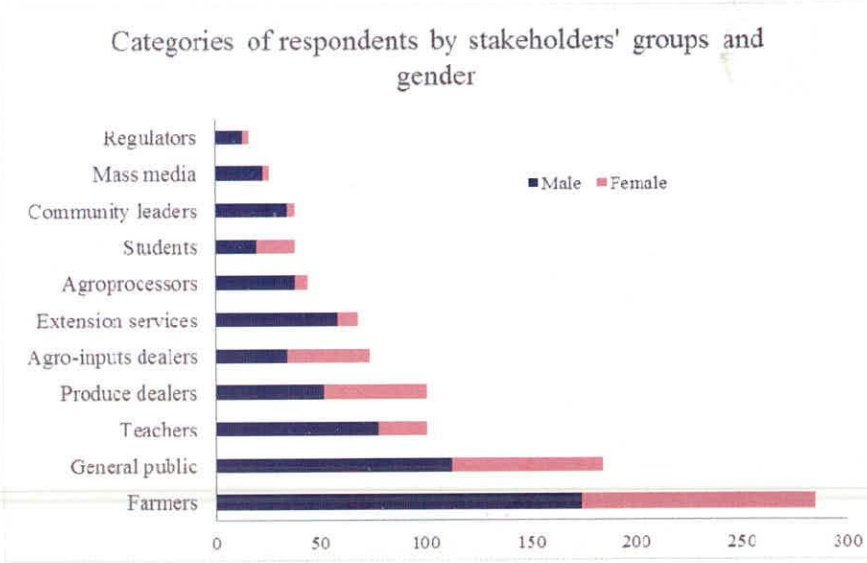


Figure 1. Categories of respondents by stakeholders' groups and gender

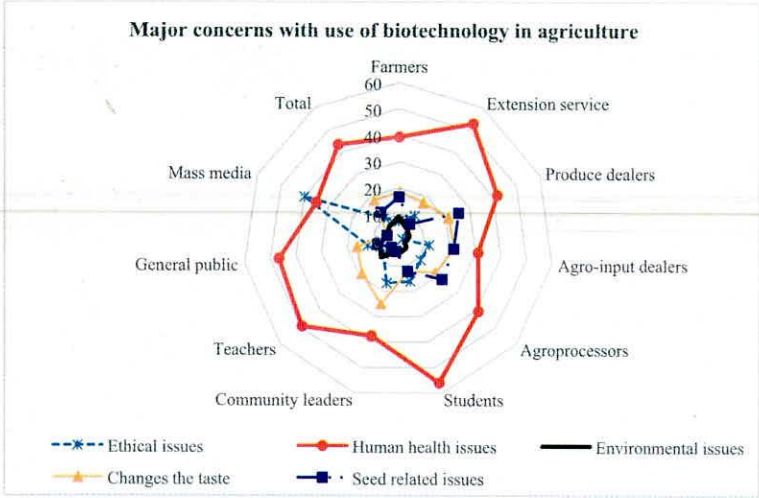


Figure 2. Key concerns associated with use of agricultural biotechnology by various stakeholders' groups

Regarding preferred sources of information, more men than women preferred to get their agricultural-related information from extension services while more women relied on farmers (Figure 3). But equally, both men and women indicated that radio was a most preferred source of information on agriculture. Unexpectedly, few respondents indicated research agencies as a preferred source of agriculture information. This result is highly indicative of the importance of research organisations such as NARO to do more outreach and increase their translation of agricultural research to the society.

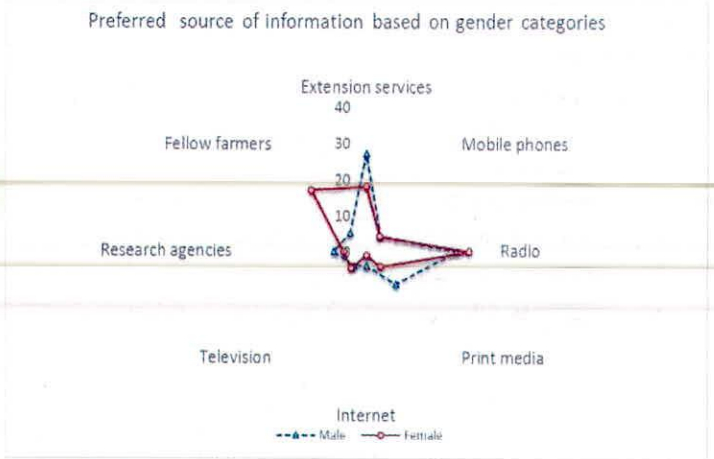


Figure 3. Preferred sources of information by respondents, based on gender.

UGANDA CHRISTIAN UNIVERSITY
P.O. BOX 4, MUKONO, UGANDA
julianmildrednakanwagi@gmail.com

2/08/2014

THE DIRECTOR AND STAFF
NATIONAL CROP RESOURCES RESEARCH INSTITUTE
P.O BOX 7084
KAMPALA, UGANDA.

RE: APPRECIATION FOR THE INTERNSHIP OFFER

Following the extra ordinary training with your organization for one week which started on 28/08/2014 and ended on 1/08/2014, I wish to extend my sincere appreciation to you, our facilitators and the entire staff and the organization at large for the good hospitality, welcome and the training that I had never thought of in my life. It was so useful, educative and a carrier guidance to a person like me pursuing a bachelor's degree in agricultural science and entrepreneurship.

The week's training has really shown me and encouraged me especially in pursuing the mentioned degree because the materials I was studying theoretically I have witnessed and it has increased my passion for the course, more than before. Although it was short; much has been achieved that will help me in my career guidance and make me perform better than I would have done if I hadn't had this training. To mention a few I was exposed to the following which were very educative and interesting and above all which will encourage me to study more: plant tissue culture, hardening off, DNA extraction, sampling and different disease identification methods.

The purpose of this letter is therefore to extend my sincere appreciation to you all for a very good, co-operative, accommodative and a heart of willingness to share knowledge. In addition I thank you so much for the care you gave me when I fell sick. By a copy of this letter I would also love to extend special thanks to my lecturer Ms. Diana Kimono who exposed me to the advertisement and encouraged me to participate in the essay competition which resulted in my being granted training with your organization where I have benefited a lot. I really request that if chances arise of such a nature let me be informed at the above address so that chances of coming back and training with you is granted for the betterment of my course. A technical report out of my training will be sent elaborating what I gained from wonderful week training.
God bless you all.

Nakanwagi Mildred Julian
Bachelor of Agricultural Science and Entrepreneurship
Uganda Christian University

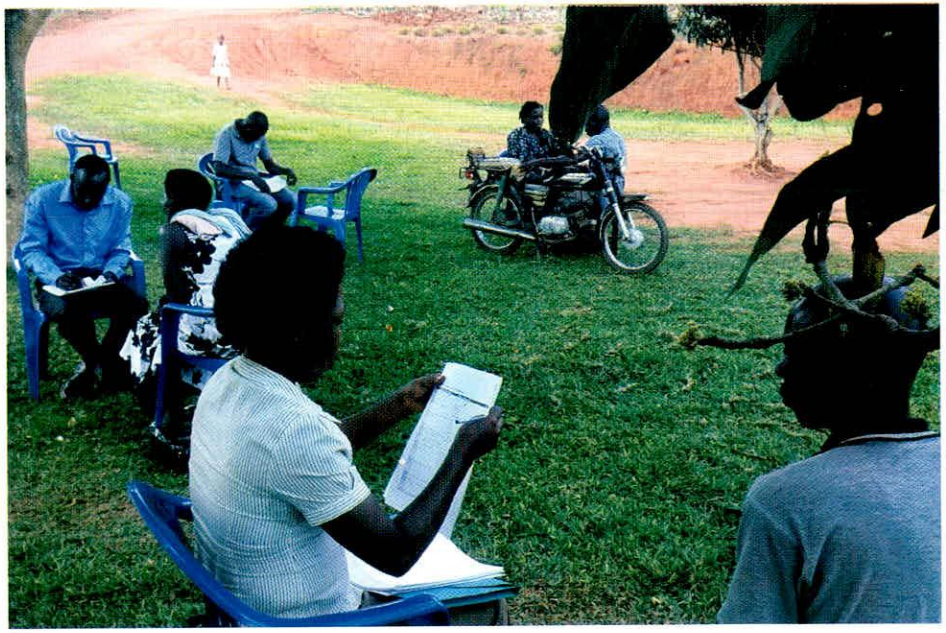
C.c. Ms. Kimono Diana



Participants and officials during the Awards Ceremony for the 2nd Biotech Essay Contest in August 2014

Below is the list of winners from the 1st and 2nd Essay Writing Contests:

1st Essay Writing Contest	Name	Institution
Tertiary institutions	Ronald Okwasiimire	Makerere University, Kampala
Opportunities and challenges in applying biotechnology for agricultural development in Uganda	Mildred Nakanwagi	Uganda Christian University, Mukono
	Edrick Bwambale	Uganda Christian University, Mukono
Secondary schools Biotechnology: Its benefits and concerns	Maxim Ohairwe Ermashkin	Kings College, Buddo
	Jacob Odur	Lira College, Lira
	Twinamatsiko Victor	Bukinda Seminary, Kabaale
2nd Essay Writing Contest	**Name**	**Institution**
Tertiary institutions	Owen Singura	Kyambogo University, Kla
Application of agricultural bio-technology and its implication on the environment	Mackenzie Tuhirirwe	BSc. Information Technology Mbarara University
	Sharon Letia	Uganda Christian University, Mukono
Secondary schools Discuss the environmental safety issues associated with the use of modern agricultural technologies	Patrick Kasiita	Bukinda Seminary, Kabale
	Emmanuel Asiimwe	Bishop Cypriano Kihangire S.S.
	Patsy Nalukenge Mugabi	Gayaza High School



PUBLIC ENGAGEMENT ON BIOTECH AND MODERN AGRICULTURAL SCIENCES

NARO, through its various institutes is coordinating research into agricultural innovations and technologies and UBIC has been organising and participating in outreach and public debates to create awareness on modern agricultural technologies such as biotechnology.

Engagement with parliamentarians

In the period under review, UBIC collaborated with the Uganda Biotechnology and Biosafety Consortium to organize two sensitization meetings at NaCRRI for the Parliamentary Committees for Quality Education (20th August 2013), and Agriculture (10th October 2013). This activity was important in creating awareness among legislators on the relevance of agricultural research being carried out for fix some of the most pressing agricultural problems, including crop diseases. The Members of Parliament left with a better appreciation of the processes involved in using the new technologies and the need for regulation of their application. UBIC also worked in collaboration with leaders of the opposition in the Parliament of Uganda in May 2014.

UBIC participated in two exhibitions organised by the Science and Technology Committee of Parliament, as part of efforts to increase the Parliamentarian awareness of innovations in science and technology, including agricultural science. The first was the Parliamentary Biotech Exhibition in December 2013 and then the Science, Technology and Innovation Week held from 8-12 December 2014. The Exhibitions were held under auspices of the Parliament Science and Technology Committee which is responsible for monitoring, educating, and assessing activities in public institutions and bodies engaged in national science and technology development. The exhibition was a unique opportunity for UBIC to interface with legislators, introduce and explain latest innovations in agricultural sciences, including biotechnology.



Dr. Titus Alicai (Center, showing the back) explains to the members of the Forum for Quality Education of Parliament the GM cassava research at NaCRRI, 20th August 2013

STRENGTHENING BIOSCIENCES TRAINING IN UGANDA'S FORMAL EDUCATION SYSTEM

UBIC conducts National Biotechnology Essay Writing contests

UBIC organised the First National Biotechnology Essay Writing Contest in 2013. The theme was: Understanding Biotechnology and its Applications. The highly publicised event attracted submissions from 60 students from 20 high schools and tertiary education institutions. The top three winners in secondary and tertiary categories won a one-week biotechnology internship at NaCRRI, which they did in July 2014.

Having registered resounding success with the first essay-writing contest, UBIC organised the 2nd National Annual Biotechnology Essay Writing Contest whose finale was on 2nd October 2014. The theme was: Biotechnology and The Environment. This round attracted 117 submissions from six secondary schools and six universities, and once again was testimony to the increasing level on interest of Ugandan youths in modern biosciences such as biotechnology. Applicants demonstrated a good understanding of biotechnology applications and how agricultural biotechnology impacts on the environment. The impressive quality of essays can be partly attributed to UBIC's efforts of outreach in different schools to explain the contest and biotechnology in general. The role of the tutors and teachers of the students was also noted and in fact, teachers of the best students were awarded. The best three essay writers from each category won a one-week biotech internship at NaCRRI which they will undertake in January 2015.



The top three winners in the Tertiary Category of the 1st Biotech Essay Writing Contest show off their end-of-internship certificates

NARO

MAY 2014

AGRICULTURAL BIOTECHNOLOGY RESEARCH & DEVELOPMENT CAPACITY IN UGANDA

Biotech/ GM crops under R&D in Uganda

SWEET POTATO
(Virus resistance; Weevil resistance)

MAIZE
(Drought tolerance; Insect resistance)

CASSAVA
(Virus resistance CBSV & CMV)

RICE
(Nitrogen Use Efficiency/Water Use Efficiency and Salt Tolerance)

BANANA
(Bacterial wilt resistance; Nutrition enhancement; Nematode resistance)

Biotech Infrastructure

15 RESEARCH INSTITUTIONS actively involved in biotech R&D

4 GENOMICS LABORATORIES

2 PLANT TRANSFORMATION LABORATORIES

7 TISSUE CULTURE FACILITIES

10 CONFINED FIELD TESTING SITES

Biotech Human Resource Capacity

145
Ugandan Scientists
actively involved in biotech R&D



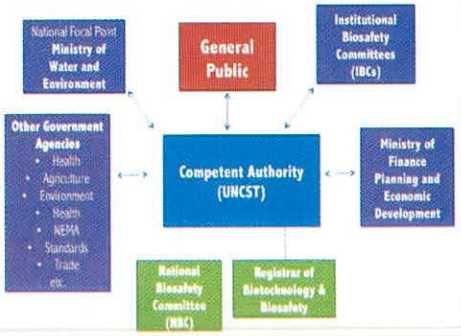
25 PhDs

50 MSc

70 BSc Degrees

Proposed Institutional Biosafety Framework

National Biotechnology and Biosafety Bill (2012)



Production of this infograph has been done through a collaboration between the Uganda Biosciences Information Center (UBIC), ISAAA AfriCenter and Uganda Biotechnology and Biosafety Consortium (UBBC). UBIC is a NARO-led information hub that shares information on agricultural research in Uganda.

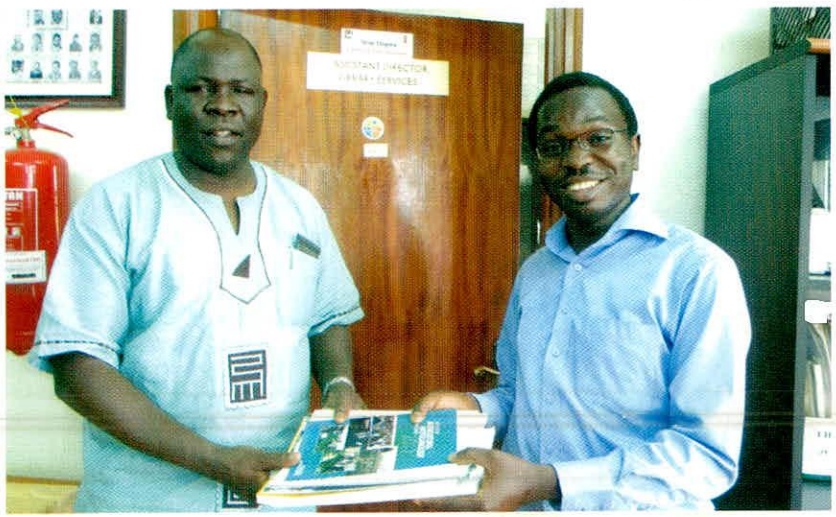
CONTACTS: National Crops Resources Research Institute (NaCRRI), Namulonge, 9 km Gayaza-Zirobwe road. P.O. Box 7084, Kampala, Uganda. Telephone: +256-414-573016. Email: ubic.nacrri@gmail.com

NaCRRI



Speaker of Parliament- Hon. Rebecca Kadaga (R) visits the Biotech Stall during the Science, Technology and Innovation Week held from 8-12 December 2014

In August 2014, UBIC donated an assortment of literature to the Parliament Library. The reference materials included: pamphlets on Frequently Asked Questions about biotechnology, charts showing biotechnology advances in Uganda, reports on the status of commercialisation of Genetically Modified Crops in the world, as well as books on biotechnology policy and regulation.



Mr. Gilbert Gumisiriza (R) - Research Analyst at UBIC hands over biotechnology reference materials to Mr. Simon Engitu (L)- Assistant Director of Library Services at Parliament of Uganda

Dialoguing with religious leaders

Religious leaders are among the most influential stakeholders and opinion formers in Uganda and UBIC is continuously engaging them on issues of modern agricultural sciences in order to empower them to create awareness and understanding among their flocks. On 17th October 2013, UBIC coordinator was a speaker at a religious leaders and farmers' sensitization meeting organized by CARITAS. On 13th December 2013, UBIC gave a keynote address at a religious leaders' meeting organized by the Uganda Joint Christian Council (UJCC). One of the feedbacks from this meeting was a request for UJCC members to visit the "wonderful" research conducted by NARO. Following this request, UBIC organised **a one-day** dialogue and field tour for clerics under their umbrella body - Uganda Joint Christian Council (UJCC), in November 2014. Other members were from: Uganda Muslim Supreme Council and the Evangelical Fellowship of Uganda. The 30 delegates listened to a presentation on biotechnology and the importance of technologies such as genetic engineering, before engaging in a discussion on the same. They also toured the biotechnology and tissue culture laboratories at NACRRI as well as the banana Confined Field Trials (CFTs) at the National Agricultural Research Laboratories (NARL) in Kawanda. Participants raised a number of concerns related to: seed sovereignty and patenting GM technology, regeneration of GMO crops, safety of biotech products, and the need for more information on biotechnology and GM crops to reach peasant farmers and rural populations. The men of God lauded UBIC for the initiative and urged for more interactions to increase their understanding of modern agriculture for development.

Their tour of the biotech facilities and participation in this dialogue was UBIC's **second interaction** with the religious leaders' body, following a December 2013 invitation by UJCC, asking UBIC to make a presentation to educate them about the proposed Biotechnology and Biosafety Bill 2012.



One of the clergy men contributes during the dialogue in November 2014



Students at the UBIC Stall during the National Agricultural Show in Jinja

Information materials' development

A considerable part of UBIC's work is to produce and provide information and education materials to its stakeholders to heighten understanding of agricultural research outputs. In the period under review, we produced a number of information materials including: posters, info-graphs, flyers, booklets, pocket Ks, CDs and leaflets. These were produced with technical support from ISAAA. UBIC also collaborated with the Root and Tuber Crops team at NaCRRI to publish three posters describing production challenges and the research progress using biotechnology tools. And in partnership with SCIFODE, UBIC facilitated the translation of some of these materials into two major languages in Uganda: Luganda (central region) and Runyakitara (south and western regions). The translated materials were critical during the district outreach activities.

Exhibitions and demonstrations

In the period under review, UBIC took part in **five** exhibitions at both institute and national level. These included: the Parliamentary Biotech Exhibition in December 2013, the Science, Technology and Innovation Week expo at Parliament, National Agricultural Show in Jinja, NARO Biennial Scientific Conference in November 2014, and World Food Day celebrations in October 2014. UBIC also set up an exhibition during a visit by high-level delates from Tanzania, who sought to learn from and share experiences with Uganda agricultural researchers, on generating, using, and regulating new agricultural technologies such as biotechnology.

Exhibitions and demonstration tours are part of UBIC's strategy of seeing-is-believing, whereby members of the public can view some of the outputs of agricultural innovations, including GM crops and hybrids. During these exhibitions, visitors can also ask questions and interact with researchers so as to better understand the new technologies.



NaCRRI's Hellen Apio (L) explains aspects of genetic transformation of cassava at an exhibition during World Food Day celebrations on 16 October 2014 at Namulonge

Media platforms usage and exchange

UBIC and NARO have identified the media as important influencers with a strong interest in agricultural innovations and technology. In this reporting period, UBIC participated in **six** radio and **three** television talk shows and programs since its establishment. These were conducted on both rural and urban stations, targeting the broad spectrum of Uganda's population. They included: Radio Simba, Suubi FM, Urban TV, WBS TV, Radio One, NTV, and UBC. UBIC is also conducting media engagements with journalists and news producers to interact with them and help to increase awareness and understanding of innovations such as modern biotechnology among the media. More visits are planned for 2015, in addition to live radio talk shows on some of Uganda's major stations.

In the period under review, UBIC also produced mini-documentaries on biotechnology and genetic engineering and these were aired on NTV- Uganda's most popular private television station. The documentaries created a lot of awareness of issues related to GMOs and biotechnology and the work that NARO is doing to improve agriculture through modern technologies. Follow the links below to view these videos:
https://www.youtube.com/watch?v=txx2MqOJrhE –Biotechnology: Why Uganda needs bio-safety law;
https://www.youtube.com/watch?v=-h180RJyR4o Biotechnolcgy debate

UBIC has also exploited the media space in Uganda to increase knowledge of agricultural innovations through publications in newspapers and magazines. These publications introduce to readers some of the agricultural innovations from NARO, expound on problems in agriculture in Uganda, and also highlight ongoing research to mitigate these challenges. Follow the links below to read some of the publications:

- Law on Biotechnology will benefit all Ugandans Published in Daily Monitor: 27 August 2014
  http://www.monitor.co.ug/Magazines/Farming/-/689860/2431618/-/gdfyce/-/index.html

- NARO to tackle fake seeds and inputs with finger-print tracking, labelling technology in Daily Monitor: 12 November 2014
  http://www.monitor.co.ug/Magazines/Farming/Naro-to-tackle-fake-seeds-and-inputs-with-finger-print-tracking/-/689860/2518142/-/154yinjz/-/index.html

- Youth can transform agriculture through adopting modern science in Daily Monitor: 05 November 2014
  http://www.monitor.co.ug/Magazines/Farming/Youth-can-transform-agriculture-through-adopting-modern-science/-/689860/2510760/-/woj1iq/-/index.html



SEEDS OF GOLD. issues

Daily Monitor

Youth can transform agriculture through adopting modern science

Students listen to a scientist explaining genetic engineering during a visit to a research institute

The buzz nowadays is getting youth into agriculture. One way is through using science and technology.

BY ANITA TIBASAAGA

Today, modern technologies such as biotechnology, are used in different parts of the world to improve quality and quantity of agricultural products.

Young scientists can embrace these modern technologies and use them to empower themselves and the country's capacity. This is so as

lutions to address localised agriculture challenges.

There should be deliberate efforts to attract youths to view agriculture as more than a hoe and gumboots activity but a science that can adopt precise technology to pinpoint aspects that require improvement. For instance, re-

INTERVENTION MEASURES

UBIC has also embraced social media as a platform for increasing interaction with end-users of agricultural research products. To read more about or to engage with agricultural researchers, one can find us on Twitter @UgandaBIC or Facebook UgandaBiosciencesInformationCenter or watch relevant and informative videos on our YouTube Channel UBICNaCRRI.

Our website is also live at www.ugandabic.org and is sufficiently resourced with information on new agricultural technologies. The website was developed with technical backstopping from ISAAA AfriCenter. The website is adequately furnished with information on biotechnology and agricultural innovations in Uganda, and our vision is to make it a one-stop information portal on agricultural research products. Readers can access articles, reports, presentations, photos, and reference materials on agricultural innovations, as well as use our multimedia functions such as videos and audio recordings.

Community sensitization and awareness

In January and February 2014, UBIC in partnership with SCIFODE conducted **four** sensitization workshops in four of Uganda's 11 regions. The workshops were held in Masaka, Gulu, Luwero, and Iganga districts and were attended by **400 participants** including: farmer leaders, cultural leaders, and area local government officials. A second round of **four** workshops was held in December 2014 in **four regions** covering Mpigi, Mityana, Mbarara, and Kabale districts. In these workshops, participants were educated about latest agricultural innovations from NARO institutes and also had discussion on little-understood

biotechnology. The latter helped them to demystify some misconceptions about GM crops. In some districts, farmers even called for their legislators to discuss and pass the Biotechnology and Biosafety law to enable release of improved crop varieties developed using biotech. Participants also admitted that they had received a lot of incomplete and false information, laced with emotion, advocating against Biotechnology.



Hajji Abdul Nadduli (R) - Luwero District's LC5 Chairperson, makes a contribution during the sensitization workshop in Luwero district in January 2014. Center is Arthur Makara from SCIFODE



Workshop participants in Gulu district in January 2014