



AFRICAN AGRICULTURAL TECHNOLOGY FOUNDATION  
FONDATION AFRICAINE POUR LES TECHNOLOGIES AGRICOLES

# Media Reporting on Biotechnology in Africa: Perspectives from African Journalists



Wandera Ojanji and Daniel Otunge



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Nairobi, Kenya

ISBN 9966-775-14-5

Correct citation: Ojanji, W and D. Otunge. 2017. *Media Reporting on Biotechnology: Perspectives from African Journalists*. Nairobi, Kenya: African Agricultural Technology Foundation.

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Editor: Peter Werehire

Design and Layout: Predon Company Limited

Printer: Colourprint Limited

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## Acknowledgements

The authors would like to acknowledge the African Agricultural Technology Foundation (AATF), which through its two projects – Open Forum on Agricultural Biotechnology (OFAB) and the Water Efficient Maize for Africa (WEMA) – organised the roundtable forum that brought together journalists from across Africa to share their experiences on reporting on agricultural biotechnology. We sincerely thank Olivia Oketch for her insightful and intellectual input and facilitations during the roundtable forum. We extend our gratitude to Peter Werehire who edited and was responsible for the publication of the document. Special thanks to the following journalists for their participation in the roundtable forum and insightful contributions to this book: Abdallah el-Kurebe, Antonio Dava, Caszanto Tong, Geoffrey Kamadi, Isaac Khisa, Lominda Afedraru, Mandi Smallhorne, Maria de Fatima Cossa Dava, Pauline Wairimu, Rodgers Ignas Luhwago, Ronald Kulabako Kato, Sifelani Tsiko and Zeynab Wandati. We acknowledge Media for Environment, Science, Health and Agriculture (MESHHA) for organising the 2nd African Conference of Science Journalists 2014, through which, we were able to speak to our target journalists and hold the roundtable discussions. Finally, we are especially grateful to the Bill and Melinda Gates Foundation for their generous support to OFAB Africa.

## Acronyms and abbreviations

AATF	African Agricultural Technology Foundation
ABNE	African Biosafety Network of Expertise
ABSP	Agricultural Biotechnology Support Project II,
AGERI	Agricultural Genetic Engineering Research Institute
AJNA	African Journalists Network for Agriculture
ARC-SA	Agricultural Research Council of South Africa
ASJA	African Science Journalists Association
B4FA	Biosciences for Farming in Africa
BMGF	Bill & Melinda Gates Foundation
CFT	Confined field trial
CGH	Contained greenhouse trials
CIMMYT	International Maize and Wheat Improvement Center
COMESA	Common Market for Eastern and Southern Africa
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DDPSC	Donald Danforth Plant Science Center
EFT	Experimental field trial
ICRISAT	International Crops Research Institute for the Semi-Arid-Tropics
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
INERA	Institute of Environment and Agricultural Research of Burkina Faso
ISAAA	International Service for the Acquisition of Agricultural biotechnology Applications
KALRO	Kenya Agricultural and Livestock Research Organization
MESHA	Media for Environment, Science, Health & Agriculture
NABDA	National Biotechnology Development Agency
NACOSTI	National Council for Science and Technology
NaCRRRI	National Crops Resources Research Institute, Uganda
NARO	National Agricultural Research Organization, Uganda
NBA	National Biosafety Authority
NBC	National Biosafety Committees
NBF	National biosafety frameworks
NGICA	Network for the Genetic Improvement of Cowpea for Africa
NGOs	Non-governmental organizations
OFAB	Open Forum on Agricultural Biotechnology in Africa
OVI	Vegetable and Ornamental Plants Institute
PBS	Program for Biosafety Systems
RAEIN	Regional Agricultural and Environment Innovations Network-Africa
S&T	Science and technology
SABC	South African Broadcasting Corporation
SADEC	Southern African Development Community
STI	Science, technology and innovation
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WEMA	Water Efficient Maize for Africa



## Foreword

Modern agricultural technology and, by extension, genetic engineering – the technique of removing, modifying or adding genes from one unrelated organism to a plant variety for the purposes of conferring desired traits in the genetically modified organism (GMO) – has delivered substantial agronomic, environmental, economic, health and social benefits to both large- and small-scale farmers in developing and industrial countries since the first GM crop was commercialised in 1996. Both the number of countries adopting the technology and the acreage under GM crops has continued to rise exponentially over the last 20 years.

Despite the demonstrated benefits, modern agricultural biotechnology is still a recurring and contentious public issue, particularly in Africa where the highly divergent scientific, political, economic, ethical, cultural, and even religious viewpoints appear to be deeply rooted. These highly divergent viewpoints have polarised interested publics or stakeholders of agricultural biotechnology in Africa resulting in confusion of mixed messages from scientists, academics, activists, industry, and consumers.

It is widely acknowledged that this debate continues to fire up mainly because of low awareness and understanding of genetic engineering among those opposed to it. It is science against moral ethics. Unfortunately, this lack of understanding that has generated apprehension, fear, and moral indignation is seriously undermining our ability to develop and put to practical use the products of modern agricultural biotechnology. As Jimmy Carter, former US President and Nobel Peace Laureate, aptly puts it, these inconsistent views regarding the use of transgenic crop technology in Europe and elsewhere in the world might have been avoided had more people received better education in biological sciences. And they must receive this education to remove this educational gap that has resulted in a growing and worrisome ignorance about modern agricultural biotechnology.

The media has a key role in creating this awareness, education and understanding of modern agricultural biotechnology. There is a general consensus that although the mass media cannot unilaterally bring about change in knowledge and opinion, they are important agents in the process of reinforcing public perceptions and, ultimately, influencing and shaping public attitudes. For this to happen, the reporting must be adequate, fair, objective, and scientifically accurate.

However, media coverage of modern agricultural biotechnology in Africa has been an issue of concern. Media performance or reporting has been below public expectations. There is a general feeling that the reporting on modern agricultural biotechnology is inadequate, wrought with sensationalism, trivialisation, inaccurate reporting; misuse of terminologies; incomplete coverage of issues, episodic, and often related to specific events, such as scientific breakthroughs or current controversies.

What comes through clearly from discussions with journalists across Africa is that most African media are yet to embrace and promote science journalism. The problem is further compounded by the fact that there is acute shortage of science writers in

most media houses in Africa. Most of the writers who are assigned science beats lack the technical skills for comprehensive analysis of issues and reporting. This has forced many of them to report on the process of the events and personalities, rather than the issues raised by these personalities.

But it is not just enough to paint a grim picture of the media in Africa. What is more important is to understand why the media in Africa has not lived up to its societal expectations. With this understanding, it is then possible to find solutions to empowering journalists and media houses to authoritatively report on modern agricultural biotechnology. And this is what this booklet is all about: understanding why modern agricultural biotechnology is poorly reported; understanding the challenges that journalists face in reporting on modern agricultural biotechnology; exploring the opportunities that journalists can exploit in reporting on modern agricultural biotechnology; and exploring strategies that can improve reporting on modern agricultural biotechnology in Africa.

The story is indeed depressing, but there is a lot of hope for improved reporting on modern agricultural biotechnology. This booklet provides stakeholders promoting modern agricultural biotechnology in Africa an opportunity to understand how to effectively engage the media for increased public awareness, education, understanding, and ultimately adoption.

*Nancy Muchiri,*

*Senior Manager, Communications and Partnerships, AATF*

## Executive summary

With about 70 percent of Africa's population being dependent on agriculture and about 80 percent of the continent's population living in rural areas (FAO 2017), agricultural growth is more important than any other economic sector. However, Africa's agricultural productivity remains among the lowest in the world due to the continent's minimum application of modern scientific and agricultural technologies. Adoption of modern agricultural biotechnology will be critical in transforming African agriculture into a force of economic growth and consequently overcome the challenge of feeding the high and rising African population expected to reach two billion people by 2050 (NEPAD 2017), creating wealth for them, and conserving resources for future generations.

The diverse scientific, political, economic, ethical, cultural, and even religious viewpoints have made agricultural biotechnology a recurring and contentious public issue. There are those who see genetic engineering as a biological revolution with untold potential benefits for agriculture and society as a whole. However, those opposed to genetic engineering see it as more evolutionary than revolutionary. Such a scenario has polarised interested stakeholders of agricultural biotechnology resulting in confusion of mixed messages from scientists, academics, activists, industry, and consumers.

Africa appears to bear the brunt of the polarisation and confusion over modern biotechnology. There is fear that Africa might once again miss out on agricultural breakthroughs. Africa completely missed out on the Asian Green Revolution in the 1960s through to 1980s that was based on agricultural technological breakthroughs that developed high yielding varieties of rice and wheat and saved billions of people from hunger. Again, modern biotechnology has so far failed to take root in Africa. The rate of adoption of biotech crops in Africa is not in tandem with other developing countries. ISAAA (2016) reports that of the 185.1 million hectares of global biotech crop areas in 2016, 99.6 million hectares were grown in 19 developing countries. However, only two African countries – South Africa and Sudan – planted biotech crops on only 2.8 million hectares with South Africa accounting for 2.7 million hectares.

Egypt and Burkina Faso are the other countries that have commercialised GM crops. However, a ban on *Bt* maize was imposed in Egypt in 2012 over safety claims while the Burkina Faso Government put a temporary halt on *Bt* cotton plantings in 2015 to address a short fibre length concern observed from farmers who have grown cotton over the last eight years.

The good thing is that several African countries have shown willingness to embrace biotechnology. Over 13 countries have heavily invested in substantial biotechnology research and development programs on a number of key strategic crops including maize, banana, rice, cotton, sorghum, cowpea, sweet potato and cotton. Several African countries have put in place or are in the process of putting in place the necessary laws, policies and regulatory frameworks to guide the research, development and commercialisation of the GM products: 10 countries have functional national biosafety frameworks; 12 have interim biosafety frameworks; 19 have initiated the process of developing the frameworks; and only six have not initiated the process of developing the frameworks.

The media has a critical role to play in the ultimate acceptance or rejection of modern biotechnology. Besides being consumers' primary and preferred source of information on science and technology, the media has been known to define what the general public understands about the technology. Media plays a crucial role in providing people with the information necessary to make decisions about policy options and the potential risks and benefits associated with agricultural biotechnology. How the media portrays science in general and biotechnology in particular can have either a positive or an adverse impact on how the public understands the topic and how policy makers craft policies.

It is widely acknowledged that the media has a key role in promoting public awareness of biotechnology, which in turn is an important driver in terms of advancing biotechnology in Africa. A high level of public awareness, coupled with access to fair, objective, and scientifically accurate reporting and information, is more likely to stimulate entrepreneurial activity, and more likely to lead to fair and positive outcomes where there are controversies.

However, there is a general consensus that biotechnology is under-reported in the popular African media. Biotechnology topics do not have a high media profile, especially compared to reporting on politics, economics, arts and sport. Of greater concern is the fact that it is now widely acknowledged that the adoption of modern biotechnology can be hampered by inaccurate, unreliable information, and lack of knowledge and awareness at all levels of society. This unfortunately is the scenario in Africa, a situation that has brought about fear, concerns and myths about the technology.

It is against this background that AATF, through its two projects; Open Forum on Agricultural Biotechnology (OFAB) and the Water Efficient Maize for Africa (WEMA) organised a roundtable forum for journalists across Africa to share experiences on reporting on biotechnology, and explore opportunities and strategies for increased coverage of biotechnology in Africa. The discussions centered on three key areas: challenges they face in reporting on biotechnology; opportunities they can exploit to report on biotechnology; and strategies to improve the quality of reporting and increased coverage of biotechnology. These were synthesised and form Chapter 4 of this booklet.

Prior to this roundtable forum, 12 journalists from across the 10 countries gave their in-depth accounts of their personal experiences in reporting on biotechnology. The accounts also centered on the three thematic areas discussed during the roundtable forum. These were synthesised as testimonies and form Chapter 3 of this booklet. These experiences are very important in understanding the factors behind the low coverage of biotechnology, and consequently devise strategies that expand the coverage and scope of biotechnology in the African media. Organisations involved in promoting biotechnology through media coverage can draw on these lessons learnt and experiences to develop effective strategies and interventions.

*Denis Kyetere,*  
*Executive Director, AATF*

## Biotechnology development in Africa



### Introduction

Africa's agricultural productivity remains among the lowest in the world due to the continent's minimal application of modern scientific and agricultural technologies. The African population, which largely depends on agriculture, is expected to reach 2 billion people by 2050, accounting for a quarter of the global population (NEPAD 2017). To feed this high and rising population, there will be need to double production on diminishing resources and amidst constraints such as climate change, declining soil fertility, pests and diseases.

Overcoming this challenge requires embracing advanced technologies in agriculture, and more so biotechnology. Juma (2011) singles out modern biotechnology as one of the three major opportunities that can help transform African agriculture to be a force of economic growth. He argues that biotechnology has the promise of increasing food security as well as improving health in developing countries. Unfortunately, such potential has remained largely untapped by African countries. While lack of regulatory regimes has been cited as a major constraint to adoption of biotech crops in Africa (James 2013, Juma 2011, Paalberg 2008), the polarised debates on GM technology have also been a major constraint. Acceptance by society in general continues to be a major battleground for debate and discussion. Despite what science says about the technology, there is no one formula to assure acceptance of GMOs.

**The diverse scientific, political, economic, ethical, cultural, and even religious viewpoints have made agricultural biotechnology a recurring and contentious public issue. Such a scenario has polarised interested publics or stakeholders of agricultural biotechnology resulting in confusion of mixed messages from scientists, academics, activists, industry and consumers. Conflicting ideas and opinions have brought into focus different technological and social dimensions that divide not only stakeholders but countries as well. Navarro and Hautea (2011) notes that attitude and perception, that are key to acceptability, are influenced by other factors - politics, religion, socio-cultural, and economic - that further complicate the decision-making process.**

Genetic engineering has indeed divided opinions. There are those who see it as a biological revolution - the agricultural equivalent of 'Star Wars' - with untold potential benefits for agriculture and society as a whole.

Proponents argue that genetic engineering has the capability to resolve or mitigate many of the most critical problems facing agriculture: conservation of natural resources, enhanced productivity to maintain the profitability and competitiveness of agriculture in world markets, amelioration of environmental pollution resulting from high-tech production systems, elimination of plant diseases, insect control, new product development, and many more (Farrel 1987).

However, those opposed to genetic engineering see it as more evolutionary than revolutionary. They argue that the plants and animals that constitute the agricultural system are genetically complex and are not amenable to rapid, intrusive changes. Whatever changes biotechnology brings about are therefore likely to occur at a pace that permits farmers and consumers to adapt to them just as they have to conventional technological achievements in the past.

Such a scenario has polarised interested publics or stakeholders of agricultural biotechnology resulting in confusion of mixed messages from scientists, academics, activists, industry, and consumers. Conflicting ideas and opinions have brought into focus different technological and social dimensions that divide not only stakeholders but countries as well. Biotechnology has now become a social phenomenon rendering it more of a social issue than a technological development (Navarro and Hautea 2011).

The media has been identified not only as the primary source of information on science and technology but also the preferred information source by consumers (Navarro *et al* 2013). Media defines what the general public understands about the technology, and at the same time provides the environment by which public opinion is formed, about what is often perceived as a controversial, if not a contentious issue.

Media plays a crucial role in providing people with the information necessary to make decisions about policy options and the potential risks and benefits associated with agricultural biotechnology. In addition, media allows citizens to gauge the climate of opinion around them and facilitates consensus building. The intensity of media coverage on the topic, for example, can influence public opinion (McCombs and Shaw 1972). Hence, media practitioners are key stakeholders for biotech communication

as they set the agenda and tone for what the public deems interesting or important. How the media portrays science in general and biotechnology in particular can have an adverse impact on how the public understands the topic and how policy makers craft policies.

## Commercialisation of GM crops in Africa

Africa's history has been marked by a catch-up development narrative in which it has either lagged in the application of science, technology and innovation (STI) for its development or simply missed out on the STIs that have driven development in other continents. Africa completely missed out on the Asian Green Revolution of the 1960s to 1980s that was based on agricultural technological breakthroughs that developed high yielding varieties of rice and wheat and saved billions of people from hunger. But as with the Green Revolution, biotechnology has so far failed to take root in Africa. The rate of adoption of biotech crops in Africa is not in tandem with other developing countries. James (2016) reports that of the 185.1 million hectares of global biotech crop areas in 2016, 99.6 million hectares were grown in 19 developing countries. However, only two African countries – South Africa and Sudan – planted biotech crops on only 2.8 million hectares with South Africa accounting for 2.7 million hectares. This has mainly been attributed to lack of appropriate and science-based regulatory systems and polarised debates surrounding adoption of transgenics (James 2013, Juma 2016 & 2011, Paalberg, 2008).

South Africa was the first country in Africa to commercialise GM crops starting with insect resistant cotton in 1998, followed with insect resistant maize and herbicide tolerant soybean in 2001 and herbicide tolerant maize in 2003. In 2008 Burkina Faso and Egypt followed suit with the decision to grow cotton and maize respectively. However planting in Egypt was put on hold in 2012 and Burkina Faso in 2015. Poor or lack of understanding and differences in perceptions and attitudes towards biotech have been blamed for those outcomes. Political upheavals have also played a role. Effective communication could have shaped different results.

By end of 2016, the acreage under GM crops in Africa stood at 2.8 million hectares: 2.16 million hectares of GM maize grown in South Africa; 0.5 million hectares of GM soybean grown in South Africa; and a combined 0.6 million hectares of GM cotton grown in South Africa (9,000 hectares) and Sudan (120,600 hectares), according to ISAAA (2016).

These countries have realised huge economic benefits from growing GM crops estimated to be over US\$1.3 billion. In 2012, Burkina Faso earned over US\$90.2 million from biotech GM cotton while South Africa earned US\$218.5 million from cotton and other biotech crops. A Sudanese farmer growing biotech crops earns US\$400 per hectare more than those planting conventional cotton (James 2013).

## On-going GM research

Substantial research and development programs on biotechnology are taking place in many parts of the continent as indicated in Table 1.

**Table 1. Some on-going biotech/GM crops research in Africa**

Status of CFTs by December 2016				
Country	Crop	Trait	Institutions Involved	Stages of December 2016
Burkina Faso	Cowpea, <i>Vigna unguiculata</i>	Insect resistance	INERA, AATF	Multi-location trials planted in 3 sites
Sudan	Cotton, <i>Gossypium hirsutum</i> L.	Insect resistance 2 Indian Bt hybrids 1 Chinese Bt cotton variety SCRC37	Biotechnology and Biosafety Research Center; China-aid Agricultural Technology Demonstration Center, Elfaw	Multi-location trials completed for 3 additional Bt hybrid varieties; Approved for commercial planting
Nigeria	Cowpea	Insect resistant to Maruca pest	AATF, Institute of Agricultural Research	Back crossed, 2 <sup>nd</sup> season Multi-locational trials in 3 sites managed by farmers
	Sorghum (ABS)	Biofortification	Africa Harvest, Pioneer Hi-Bred, a company of DuPont business, IAR and NABDA	4 <sup>th</sup> CFT and back crossing with preferred Nigerian varieties, still on going
	Rice	Nitrogen use, Water efficient and salt tolerant (NUWEST) Rice	National Cereals Research Institute, Badeggi	Permit granted trial in on going
	Maize, <i>Zea mays</i>	Insect resistance Bt + Herbicide tolerant Ht corn	Monsanto Agriculture Nigeria Ltd	CFT permit granted (yet to commence)
	Cotton (commercial release)	Insect resistance	Monsanto Agriculture Nigeria Ltd	Approved for commercial release: Bt Cotton (On 4 multi-location NPTs)
Ethiopia	Cotton	Insect resistance	Ethiopia Institute of Agricultural Research (EIAR), JKAgriGenetics-India	Multi location trials in 6 sites
Ghana	NUWEST rice	Nitrogen Use Efficiency/ Water Use Efficiency and Salt Tolerance	Crop Research Institute, AATF, IITA	3 <sup>rd</sup> CFT relocated to a more drier area (uplands)
	Bt Cowpea	Insect resistance	AATF, Savannah Agricultural Research Institute	Multi-location trials planted in 3 sites
Cameroon	Cotton	Insect resistance and herbicide tolerance	Bayer Crop Science	Application for Environmental release in process
Kenya	Maize, <i>Zea mays</i> L.	Drought tolerance (WEMA)	AATF, CIMMYT, KALRO	CFT-6 <sup>th</sup> Season completed
		WEMA Insect resistance (Bt maize-MON 810)	AATF, CIMMYT, KALRO	Conditional Approval for Environmental release; to conduct National Performance Trials (NPTs)
		Stack maize event for Bt (MON810) and Drought (MON87460)	AATF, CIMMYT, KALRO	1 <sup>st</sup> season CFT completed
	Cotton, <i>Gossypium hirsutum</i> L.	Insect resistance	KALRO, Monsanto	Conditional Approval for Environmental release; to conduct National Performance Trials (NPTs)
	Gypsophila, <i>Gypsophila paniculata</i>	Pink Colouration of Petals	Danziger - "Anzi Flower Farm, Israel	Review for Environmental release
	Cassava, <i>Manihot esculenta</i> Crantz	Cassava Brown Streak Disease Introgression into CMD tolerant background materials	KALRO, Danforth Plant Science Center (DDPSC)	1 <sup>st</sup> season CFT completed, Regulatory trial ongoing - 1 <sup>st</sup> season



		Cassava Brown streak virus (CBSV) and African Cassava Mosaic Virus (ACMV)	Masinde Muliro University of Science and Technology (MMUST)	CFT- 1 <sup>st</sup> season completed
	Sweet potato <i>Ipomoea batatas</i>	siRNA resistance to Sweet potato virus disease	KALRO-Kakamega, Danforth Plant Science Center (DDPSC)	1 <sup>st</sup> season CFT completed
	Banana	Banana bacterial - Xanthomonas Wilt (BXW) resistance	KALRO, IITA	1 <sup>st</sup> season CFT ongoing
	Sorghum (ABS), <i>Sorghum bicolor</i> Moench	Enhanced pro-Vit. A levels, Bio-available Zinc and Iron	Africa Harvest, Pioneer Hi-Bred, a DuPont business and KALRO	CFT- 7 <sup>th</sup> Season completed
Uganda	Maize, <i>Zeamays</i> l.	Drought tolerance and Insect resistance stacked events	NARO, AATF, Monsanto, CIMMYT	Multi-location Trial planted in July 2016
	Banana, <i>Musa spp.</i>	Banana bacterial - Xanthomonas Wilt (BXW) resistance	NARO, IITA	On multi-location trial
		Banana parasitic nematode resistance	NARO, University of Leeds	2 <sup>nd</sup> season CFT-planted in March 2016
		Nutrition enhancement (Fe and Pro- vitamin A)	NARO, QUT (Queensland University of Technology)	In staggered planting systeming. Latest staggered planting done on-going
	Cassava, <i>Manihot esculenta</i> Crantz	Cassava brown streak virus (CBSV) resistance	NARO, DDPSC	CFTs- 1 <sup>st</sup> Trial crossing block planted
	NEWEST Rice	Nitrogen Use Efficiency/ Water Use Efficiency	NARO, AATF, Arcadia Biosciences	3 <sup>rd</sup> season CFT-harvested in August, construction of a rain out shelter on- going
	Potato	Disease resistance	NARO, CIP	CFT- 4 <sup>th</sup> Trial Planted in October, 2016
Tanzania	Maize	Drought tolerance	AATF, Commission of Science and Technology (COSTECH)	1 <sup>st</sup> season CFT planted in October
Malawi	Cotton, <i>Gossypium hirsutum</i>	Insect resistance	LUANAR, DARS, Monsanto, Quton	General Release approved Variety registration trials underway to be planted in 9 sites
	Cowpea, <i>Vigna unguiculata</i>	Insect resistance	LUANAR, DARS, AATF	2 <sup>nd</sup> season CFT planted
	Banana	Bunchy top virus resistance	DARS, Queensland University of Technology	CFT- 1 <sup>st</sup> season trial planted in July 2016
Mozambique	Maize	Stack-Drought tolerance and Insect resistance	AATF, Instituto de Investigaçao Agresti de Mo Motigaç (IIAM)	CFT approval granted
Swaziland	Cotton	Insect resistance	Swaziland Cotton Board, JK Agri-Genetics	CFT approval granted
South Africa	Cotton	Insect resistance & Herbicide tolerance	Bayer Crop Science	Trial permit granted
	Maize	Drought tolerance and insect resistance	AATF, IAR	Trial on-going
		Insect resistance	AATF, IAR	Trial on-going

Source: ISAAA 2016



## Sober debate needed on adoption GMOs

**L**ike elsewhere across the world, there is an ongoing debate in Tanzania about the safety of genetically modified organisms (GMOs).

The GMO debate has centred on the use of food and other products derived from genetically modified crops instead of conventional crops. The debate involves consumers, farmers, biotechnology companies, governmental regulators, non-governmental organisations and scientists.

At the core of controversy is whether or not GMO food should be labeled, the role of government regulators, the objectives of academic research and public action, the effect of genetically modified crops on health and the environment, the effect on pesticide resistance, the impact of such crops for farmers and the role of the crops in feeding the world population.

There is a concern among some members of the public that eating genetically modified food may be harmful to your health or trigger some allergic reactions. Specific concerns include eating of genetically modified and non-genetically modified products in the national food supply.

Environmentalists are also concerned about the possible ecological disruption posed by GM crops. Unwanted super weeds may emerge when the indigenous weeds develop resistance to common herbicides. Another concern is that of the alteration and elimination of natural species.

The seed head of the GMO plants does not self-propagate like the natural indigenous seed.

The reason that in such and every planting season, farmers will have to completely depend on foreign seed manufacturers with patents and on local agents who rely on market forces to determine prices.

On the other hand, adverse weather conditions in Tanzania and elsewhere in Africa such as prolonged drought that inevitably lead to widespread crop failure, mean that African nations cannot afford to completely turn their backs on GM crops to improve harvest and reduce grain losses.

A national network of farmers groups in Tanzania that was recently approved by the Tanzanian government is also a law that allows



**WALLACE MAUGGO**  
*W. Mauggo*

interview 31

...difficult job fighting drug barons who had turned the country into a transit point for drugs to Asia and US

...drug barons

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## KILIMO KWANZA

SUPPORTING THE PROMOTERS OF THE GREEN REVOLUTION

Let's fight the culture of fatalism to revolutionise our agriculture industries **KATALISHI Page 3**

Revisiting the past, current and future of Tanzania's dairy industry **TAFARA Page 4**

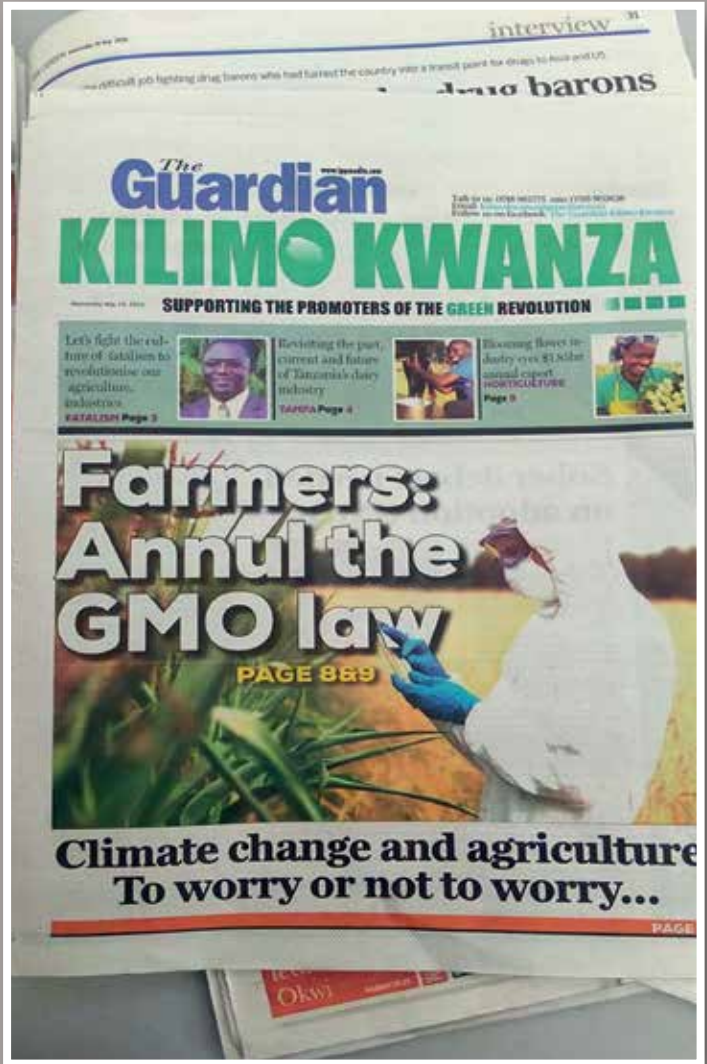
Blowing flowers to dusty eyes: \$1.8bn natural export **MOVICULTURE Page 5**

### Farmers: Annul the GMO law

**PAGE 889**

### Climate change and agriculture To worry or not to worry...

**PAGE**






## Policy environment

Several African countries have put in place or are in the process of putting in place the necessary laws, policies and regulatory frameworks to guide the research, development and commercialisation of the GM products. About 13 countries have functional national biosafety frameworks, while above 12 have interim biosafety frameworks. About 19 countries have initiated the process of developing the frameworks; and only six have not initiated the process of developing the frameworks (ABNE 2016). While it is encouraging that African countries appear to have placed biotechnology on their development agenda, the slow pace of enactment of these legal instruments is however an issue of great concern. Except for South Africa and Sudan that have commercialised GM crops, the rest of the countries are losing out on the benefits of biotechnology due to their failure to develop good and adequate Science, technology and innovation (STI) policies.

It is imperative that African countries develop and implement the necessary laws, regulations and policies to guide and legitimise the research process and commercialisation of biotechnology products. A comprehensive policy to guide research, development and commercialisation of biotechnology products is an important first step in defining a country's biotechnology agenda. A national biosafety law or strategy is also essential as it provides a set of principles to guide subsequent development and implementation of a legal biosafety framework and associated regulation that both responds to national needs and conforms to global obligations and trends.

Africa is slowly warming up to biotechnology. A number of countries have put in place policies and regulatory frameworks to support the responsible and safe use of biotechnology (Figure 1 and Table 2).

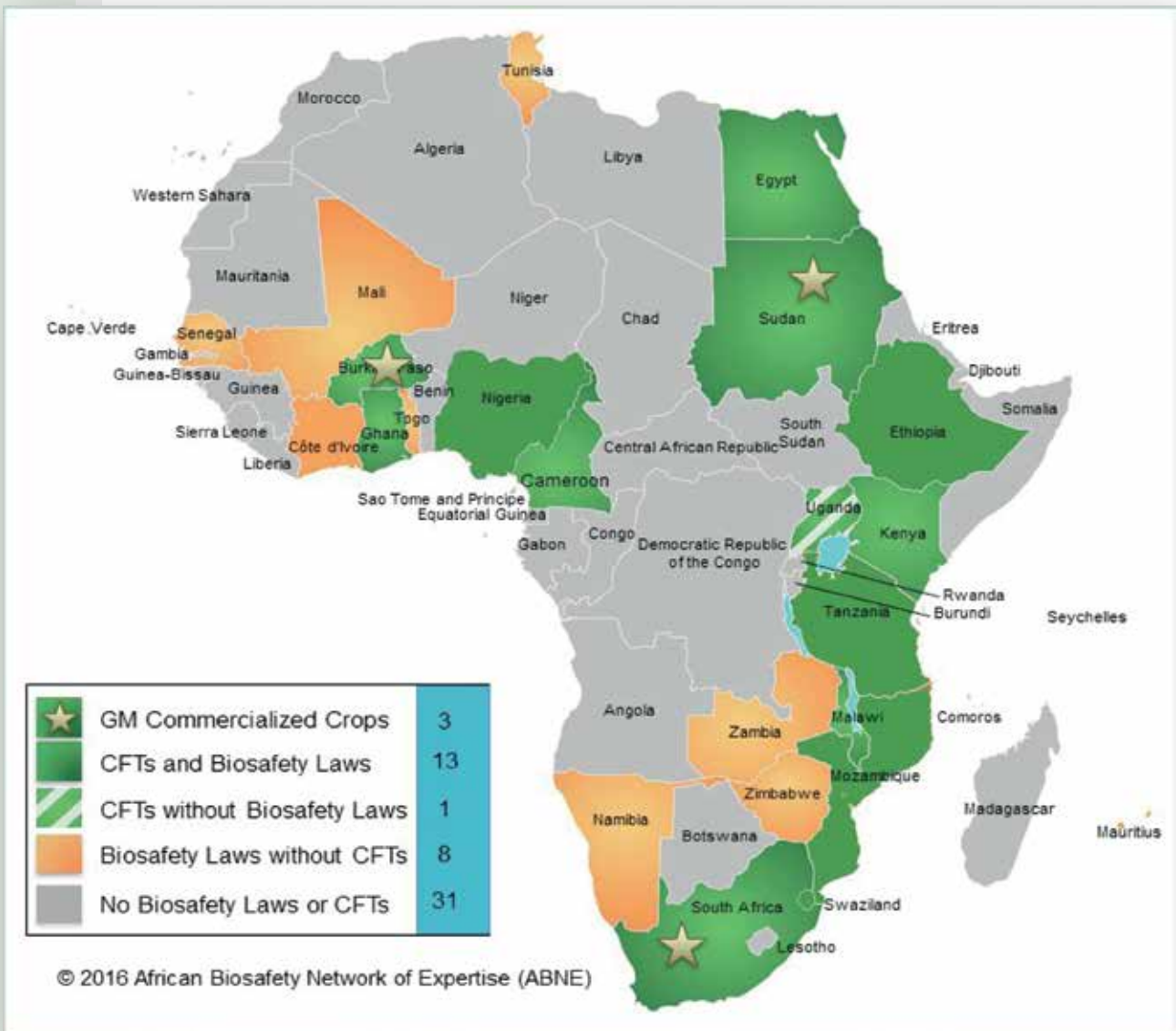


Figure 1. Status of country policies and regulatory frameworks to support of application of biotechnology

**Table 2. Status of biotechnology policies and biosafety frameworks in some African countries, 2016**

Country	Biotechnology policy	Biosafety Regulatory Regime
Burkina Faso		Biosafety Act 2006 and subsequently revised in 2012
Burundi	Draft Biotechnology policy	Sectorial legislation with reference to biotech draft Biosafety Bill 2006
Cameroon		National Biosafety Law
Comoros	Draft policy on biotechnology	No specific biosafety policy
DR Congo	Draft national biosafety law	Draft Biosafety Bill
Djibouti	No standalone biotech policy. Referenced to biotech issues implicit in policy on environment	No specific biosafety policy
Egypt	No standalone biotech policy. Various government policies on biotechnology and biosafety issues	National Biosafety Law
Eritrea	Draft national biosafety law	Sectorial legislation with reference to biotech Draft biosafety policy and guidelines
Ethiopia	No standalone biotech policy. Referenced to biotech issues made in other sectorial policies, e.g. policy on environment	Biosafety Proclamation and Biosafety Directives adopted in 2009 and amended in 2016
Ghana	Has Biosafety legal Instruments, Biosafety regulations and Biosafety Guidelines	Biosafety Act 2011
Ivory Coast		Biosafety Act 2016
Kenya	National Biotechnology Development Policy 2006	Biosafety Act 2009
Libya	Draft national biosafety law	Draft Biosafety Bill
Malawi	Has standalone national biotechnology policy	Biosafety Act 2002. Biosafety regulations approved in 2007
Mali		Biosafety Law enacted in 2008
Mauritius	No standalone biotechnology policy.	GMO Act 2003
Mozambique	Has biotechnology policy	Regulations governing GMOs research through Presidential Decree that was revised and passed into Law in 2014
Namibia	Has national Biosafety Policy	National Biosafety Act 2006
Nigeria	Has national biosafety policy	Biosafety Law enacted in 2015
Rwanda	National Biosafety Law developed during the National Biosafety Framework (NBF) project	Draft Biosafety Bill, draft biosafety guidelines
Senegal	Has National Biotechnology Policy	Biosafety Law enacted in 2009
Seychelles	No standalone biotech policy. Referenced to biotech issues made in other sectorial policies	No specific biosafety policy, sectorial legislation with reference to biotech
South Africa		The Genetically Modified Organisms Act 1997 and the Environmental Conservation Act 1989
Sudan	National biosafety policy	National Biosafety Law enacted in 2010
Swaziland		National Biosafety law in place since 2012
Tanzania	National Biotechnology Policy adopted in 2010	National biosafety legal framework adopted in 2004 under the Environment Law
Togo		Passed Biosafety Law in 2009
Uganda	National Biotechnology and Biosafety Policy 2008	Biosafety Law passed by Parliament in 2017
Zambia	Biotechnology and biosafety policy 2003	Biosafety Act 2007 currently undergoing revision
Zimbabwe	Has standalone national biotechnology policy	National Biotechnology Authority Act; Research (Biosafety) Regulations of 2000 to be replaced

Source: Modified from ABNE 2016

Director general denies giving licence on maize varieties being developed by researchers

by Wahinya Henry  
@PeopleDailyKe

Hopes that Kenya could introduce genetically modified crops (GMOs) soon could take longer as an environmental watchdog is yet to officially issue approval for Bt Maize's environmental release.

Though the trials are ongoing, the process is still some way off from commercialisation of GMOs.

National Environment Management Authority (Nema) director general Prof Geoffrey Wahungu says they have yet to receive some information from the Agriculture ministry, pegging back biotechnologists, who have been anxious to get clearance from the agency and other related bodies to pave way for GMOs to be introduced in Kenya.

Kenya Agricultural and Livestock Research Organisation (KALRO) and the African Agricultural Technology Foundation (AATF) were reported as confirming that Nema had approved an environmental impact assessment (EIA) report they had jointly submitted.

#### No licence

But Wahungu, in a terse rejoinder, rubbished the reports, saying Nema could not pursue that route as the Agriculture ministry had yet to respond to the content of the EIA.

"No! It has not," was his terse response in a text message, on whether Nema had given approval to the EIA, adding:

"All I can say at this moment is that we have not issued a licence. There is information we await from the Ministry of Agriculture. That's all I can say now," said Wahungu.

His statement contradicted a congratulatory message sent by AATF regulatory affairs manager Francis Nangayo, who had said the nod from Nema was timely as experts and other agencies in the science field had waited anxiously for approval.

Indications of how sensitive the matter is came to the fore after the National Biosafety Authority (NBA) refused to be dragged into the field

# BusinessHub

PEOPLE DAILY / Monday, August 22, 2016

## Nema delays GMO nod even as field trials start

### PEST RISK

Kalro and AATF have developed a Bt maize variety scientists believe is resistant to the stem borer, the notorious insect pest blamed for cutting maize production by 13 per cent, or 400,000, in Kenya per annum.

According to the agricultural sector development strategy, Kenyans depend on maize for their daily food and are too often threatened by hunger due to a number of constraints such as insect pests.



A researcher guides farmers in a tour of maize fields at the Kalro station in Kiboko, Makueni county. PHOTO: WAHINYA HENRY

## Sh7.2b

Foreign exchange  
Value of maize Kenya imports annually to seal production gap

trials issue by insisting the action was out of its hands, and referred *People Daily* to AATF and the Kenya Plant Health Inspectorate Service (Kephis).

"We did our part. We have no further role to play as a regulatory agency. We gave our approval early this year. Field trials is a baby of the AATF and Kephis," said the authority's director of technical services, Prof Dorington Ogoyi.

NBA granted conditional approval to Kalro and AATF for the environmental release as a first step towards commercialisation of GM maize.

According to the law, it is mandatory for research bodies to com-

pile an EIA report and present it to Nema for approval.

At an earlier public hearing forum, NBA chief executive Dr Willy Tonui—while acknowledging the GMO technology triggers debate mostly because of lack of information—defended the watchdog from accusations leveled against it that it was in a hurry to approve the application.

"We are strictly following the law to the letter in this process. The necessary gazette notice was issued and the public participation appeal publicised in the local media. If you want

to see all the parameters, come to the NBA," he told the opponents.

#### Retracted findings

A ban on importation of GM products was imposed by the government three years ago after a French scientist claimed to have carried out a study that showed the crops cause cancer. He later retracted the research findings.

Experts argue GMOs can help battle pests and diseases, improve nutrition and reduce the use of wa-

ter and chemicals, all of which would benefit farmers and consumers. The crops can increase yields, which lag in Africa behind those of the rest of the world.

"Aflatoxin, for instance, is harmful to human beings and causes massive damage to the grain," said Karlo director general Dr Eliud Kireger.

"To move forward in making the country food secure by transforming smallholder agriculture from subsistence to innovative, commercially-oriented practices, the problems need to be resolved," he added.

# Coverage of biotechnology in Africa: an overview

### Inadequate and poor coverage

It is widely acknowledged that the media has a key role in promoting public awareness of biotechnology, which in turn is an important driver in terms of advancing biotechnology in Africa. Navarro (2008) notes that a high level of public awareness, coupled with access to fair, objective, and scientifically accurate reporting and information, is more likely to stimulate entrepreneurial activity, and more likely to lead to fair and positive outcomes where there are controversies.

However, there is a general consensus, supported by various studies (Gastrow 2010, Kimera and Mboyah 2007) that biotechnology is under-reported in the popular African media. Biotechnology topics do not have a high media profile, especially compared to reporting on politics, economics, arts and sport. Of greater concern is the fact that the adoption of modern biotechnology can be hampered by inaccurate and unreliable information, and lack of knowledge and awareness at all levels of society. Unfortunately, this is the scenario in Africa.

A study by Gastrow (2010) shows that media coverage of biotechnology in South Africa is wrought with sensationalism, trivialisation, and inaccurate reporting; misuse of terminologies; incomplete coverage of issues; episodic; and often related to specific events, such as scientific breakthroughs or current controversies. Although the study focussed on South Africa, its findings are representative of media coverage in Africa considering that other studies in other parts of Africa had similar findings. This is further supported with individual discussions with journalists across Africa (see Chapter 3).

A similar study by Karembu and Nguthi (2011) also found that there was minimal coverage of biotechnology despite the fact that all stations sampled had agricultural programs.

Another study in Kenya by ISAAA (2006) also showed scant coverage of biotechnology issues as demonstrated by the inadequate treatment given to three of the four variables of effective news reporting: number of items, space allocation, and placement of the stories. None of the biotechnology stories made headlines – they did not appear between page one to three or the back page. This shows that editors accord biotechnology stories little prominence. Those published were mainly newsy, lacking in-depth analyses and/or investigative journalism.

Whilst other themes such as politics, business, finance, health, and shipping have regular columns, biotechnology news did not have any specified or regular column in the *Nation* and the *Standard*, the two widely circulated dailies in Kenya and the *EastAfrican*, the only regional weekly newspaper in eastern Africa.

The only exceptions are specialist publications and websites, which have a direct interest in biotechnology related issues and do have more extensive coverage of

biotechnologies that directly affect their readership. For instance, Ryan (2014) analysed 12 websites, 10 science/policy-based blogs and four farm blogs with evidence-based content and found that overall, they collectively provided credible information covering a full range of issues relevant to agricultural biotechnology.

## Robust online reporting

While biotechnology is generally under-reported in the print media, there is substantial reporting in the online media as revealed by Gastrow (2010). A searcher who found no articles in the *City Press* print and online archives found only four in the *Sowetan* archives, and 13 articles in *The Mail & Guardian*.

‘These searches illustrated that regional newspapers may have practically no coverage of biotechnology and related issues. However, the real bulk of information about biotechnology is available online, with hundreds or thousands of articles available on *Independent Online* (IOL). This suggests that the richest source of news articles about biotechnology is the online media rather than the print media,’ Gastrow concluded. This according to Ryan (2014) is due to the rapid growth in Internet usage, rapid adoption of mobile devices and increased use of social media offering the consumer immediate access to an information-rich environment.

However, this in itself is a source of major concern: the role of mass media and the rise of the citizen journalist as well as the influence of celebrity on the environment where distorted information about food and the food production system rapidly circulates. This environment has led to staunch and vocal opposition to products of genetic engineering (Ryan 2014).



*Journalists collect plant samples for DNA extraction outside University of Ghana at Legion biotechnology lab. The journalists were taken through the DNA extraction process at the university during the OFAB West Africa Regional Media Training in May 2017.*



## Science or ethics of biotechnology

Gastrow (2010) found two general approaches to reporting of biotechnology issues: one approach focuses on the science of biotechnology; the other adopts a moralising point of view that focuses on the ethical implications of the science, rather than the science itself, an approach that is often made from a reactionary and/or religious point of view.

The strict moralising view – ‘how dare scientists engage in this kind of research?’ – perceives biotechnology to be unethical and ‘playing god’. Online comments with this view don’t speak to the science in question, but focus on the ethical implications of the science. A second point of view focuses on the science in question, and these comments generally put forward the belief that it is the acceptable role of science to ask questions and push boundaries. There is little or no middle ground between these two positions – indicating that debates about biotechnology are polarised in society as well as in the media. However, this polarisation is rarely, if ever, about the validity of the science itself – the polarisation is about ethical implications only.

Related to this is the role of unbalanced reporting in framing the ethical tone of biotechnology coverage. Journalists are not always sufficiently educated on biotechnology and thus often report in a sensationalist manner without fully understanding their subject matter (UNESCO 2009, Gastrow 2010). This is in agreement with the Karembu and Nguthi (2011) that found that radio broadcasters have limited knowledge of agricultural biotechnology, making it very difficult for them to navigate GMO controversies, and also have difficulty interpreting technical agricultural biotechnology jargon. While radio producers are positive and supportive of agricultural biotechnology, they are full of misconceptions about agricultural biotechnology. This is partly due to the fact that most broadcasters lack proper training not only in biotechnology, but also in journalism.

## Influencers of media messages

Fair and accurate reporting also requires a level playing field for the various actors – scientists, NGOs and government – influencing the media. These actors play very different roles in influencing media messages. According to Gastrow (2010), scientists are perceived as being the most neutral and objective actors and sources of information. However, they are also perceived to be inaccessible and suspicious of journalists. Scientists, on the other hand, fear that inadequately trained journalists will misrepresent their research, or they feel that engagement with the media should not fall within the ambit of their work. Fostering a closer and more productive relationship between journalists and scientists is thus a key policy objective in terms of enhancing both access to information and neutrality in the reporting of biotechnology.

## Capacity building of journalists

Whereas informal training of journalists through short-term courses (workshops and seminars) has yielded some positive results in accuracy and balanced treatment of issues, there exist major capacity building needs among media educators, according to Gastrow (2010).

Conventional media training has not significantly addressed training for specialised writing/scripting, a situation compounded by the very few qualified media educators with a science background. Even fewer are media educators with substantive knowledge on modern biotechnology issues, which are relatively new disciplines. According to Gastrow (2010), building capacity of media educators on advanced radio interviewing skills, handling live and online interactive radio sessions, searching for credible sources of information and exposure to basic concepts on biotechnology and biofuels is therefore timely, need-based and highly significant to the development agenda. Training of trainers (TOTs) will have a multiplier effect of training in-house staff and develop regional capacity with potential to institutionalise specialised writing in journalism training. A training module should be developed and availed to all journalism training institutions in respective countries while, in the longer term, opportunities and support for an on-line training course should be explored.

In order to improve coverage of biotechnology, Karembu and Nguthi (2011) recommended the following: develop a vocabulary and glossary of terms for the commonly spoken main languages for consistency in interpretation and understanding of agricultural biotechnology; develop an expanded network of technical experts as resource people on agricultural biotechnology capacity building for journalists; and train scientists on how to package information for media, among others.



*OFAB team participants at the Cornell Alliance for Science Biotech Global Leadership Program*

# Media reporting on biotechnology in Africa: case studies

## Heightened reporting but highly divided positions on biotechnology

*Rodgers Ignas Luhwago, Managing Editor, Weekend Editions, The Guardian, Tanzania*

Though a career journalist, and a seasoned one for that matter, it was not until 2013 that I was introduced to biotechnology by a colleague, James Mpinga, to whom I am very grateful. For biotechnology has now become my pet subject. I am proud of the quantity and quality of the articles I have published within 2013.

While acknowledging that there has been heightened reporting on biotechnology since 2013 when I got involved, I am surprised at the level of divergent opinions and articles being published on biotechnology. Tanzanians are very much divided on biotechnology, a division that is prominent even in newsrooms.

On one hand, there are journalists who are very factual in their reporting on biotechnology, focussing on issues and, more importantly, very balanced. On the other hand, there are a few journalists who do not understand the issues nor go the extra mile to understand them.

The anti-GM debate is more emotional and sensational than it is scientific. Emotion and sensation are easy to report as you do not need verification and they are juicy and saleable to editors. It is a divided journalism pitting the knowledgeable science journalists against the ignorant and the lazy, unwilling to learn the science of biotechnology.

One way out of this situation is to ensure that as many journalists as possible are not only trained on reporting on biotechnology, but also trained on biotechnology. This is a technical subject. Most journalists' understanding is still low and hence the need to make them knowledgeable on the subject and issues under debate. The training will not only help them to understand the technology, but also on how to repackage the information to be understood by farmers and the general audience, and to be able to repackage the information to relate to issues farmers and the general public can relate to.

In addition to the training, there is need to provide the journalists with resources that can enable them undertake assignments not supported by their editors or media houses but which are of high importance to the community.



Biotechnology is still considered by many Tanzanians as an elitist subject, which is not the case. The crops being developed are not only for the academia or research but for the resource-poor farmers, our parents, brothers, sisters and relatives, our entire community, be it urban or rural.

I am always perplexed by some self-proclaimed anti-GM activists like Vandana Shiva<sup>1</sup> who is trotting the globe demonising genetic engineering and the derived products yet her country (India) is one of the leading producer and exporter of GM products, especially cotton. What I fail to understand is how some of our Members of Parliament (MPs) in Tanzania are easily influenced by such activists in propagating misinformation about biotech.

Though relatively young in biotech reporting, I am a seasoned journalist. I joined University of Dar el Salaam in 1998 to pursue a degree in Education majoring in English and French. But what impressed me most were the courses in journalism and it was therefore no surprise that upon graduation in 2002, I joined the *Daily News*, instead of teaching, a decision I am proud to have taken.

Having spent one year with the *Daily News* newspaper, I joined the *Business Times* and later on worked with the *Citizen Newspaper* for about four and a half years before joining the *Guardian Newspaper* in 2008, rising through the ranks to become the Managing Editor of one of the leading newspapers in Tanzania.

My passion and dedication for excellence in journalism has seen me pursue postgraduate studies in international journalism from Asahi Shimbuni Institute, Doshisha University, Japan.

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1 [http://en.wikipedia.org/wiki/Vandana\\_Shiva](http://en.wikipedia.org/wiki/Vandana_Shiva)

## I am what I am because of training and passion for journalism

*Sifelani Tsiko, Re-write Editor, The Herald, Zimbabwe*

Over the last 15 years, I have extensively and authoritatively reported on international, political, and economic issues. In all these, my passion and top interests lie in reporting on health, environment, agriculture, science and technology issues in Zimbabwe and Africa in general. In my journalistic work, I have always been guided by the desire to provide in-depth and balanced examination of facts. I have developed a taste for on-site reporting and I am passionate about journalism that reports more on issues that affect the poor. Over the years, most of my articles have been published in the *Herald*, the largest circulating daily in Zimbabwe, the *Sunday Mail* and other publications in Africa and abroad.



I have received numerous awards and various accolades for my investigative reporting on the plight of local communities that were suffering heavily as a result of mining and other environmental degradation activities. I have earned my respected through my authoritative reporting. My seniors recognise my talents in writing and have rewarded me with promotions that have seen me rise through the ranks to become a Re-Write Editor and columnist with the *Herald*. My passion and dedication to science reporting earned me a column in the *Herald* to write on science matters since 2002, a page I have always filled with compelling articles on agricultural biotechnology, nanotechnology, the GMO debate and a number of science-related issues.

While one needs passion and dedication to be an accomplished science journalist, these must be complimented with capacity building initiatives to help understand the subject and become an expert on it. Indeed, besides my training in journalism, I have also attended numerous conferences and workshops on science-related issues. AATF, ISAAA, and Regional Agricultural and Environment Innovations Network-Africa (RAEIN-AFRICA) are some of the organisations that have been very supportive in building the capacity of journalists to effectively report on biotechnology.

I believe Zimbabwe and Africa at large needs a critical pool of passionate and dedicated science journalists. Many of these will have to be recruited and inducted into science reporting from the lower ranks. Besides training, mentoring from experienced and knowledgeable journalists will be key to their success in science reporting. I am proud to be one of the few journalists in Harare who have taken up the role of mentoring young journalists and training of senior reporters with interest in biotechnology.

While encouraged by the trends in reporting on biotechnology in Zimbabwe, I believe there is still a lot to be done to improve the level of reporting. Key among them is training of journalists on science reporting and more specifically on biotechnology as a minimum requirement. In addition, there is need to train journalists to effectively undertake investigative, in-depth and narrative assignments. This may require additional support outside the newsroom by way of grants or facilitation. To keep

abreast with the latest developments and issues in biotech, and also to help them become more knowledgeable on the subject, they should be facilitated to attend biotech and other science conferences and events. There is also need to strengthen local associations of journalists, make them more functional and effective in supporting their members to undertake assignments that their editors or media houses might not support financially.

However, there are a number of challenges I believe need to be seriously addressed for science journalism and reporting on biotechnology to succeed in Zimbabwe: There is a perception – that might be true or false – that science stories are dull. How do we make science reporting and biotechnology in particular more interesting?

Unlike reporting on politics, sports and entertainment, science reporting is based on facts, not opinions; there is no room for the journalist to make it sensational. It is a perception that sometimes is very much embedded in editors, who unfortunately relegate science issues to the periphery and do not give them their due prominence. Sometimes, young journalists coming to the newsroom are exposed to this wrong perception, shying away from venturing into science journalism.

‘One of the greatest challenges I have encountered in my mentoring is how to effectively interest young journalists to get hooked to science journalism. Many are indeed knocked off by the demanding requirements for science journalism – extensive reading to understand the complex science issues and breaking them down to what can easily be understood by the general audience or public. Science journalism has remained only for those with a passion for science reporting. But even for those with the passion, they are still faced with lack of funds to undertake research that would greatly contribute towards in-depth, narrative and investigative journalism that is critically lacking.’

A further challenge for the science journalists is lack of credible sources of information and resources. I have been lucky that I have developed a wide network of institutions and scientists that have trust in me and are more than willing to respond to my queries, provide information and resources.

## Secrets of excellence in biotech reporting

*Zeynab Wandati, Agricultural Reporter, Nation Television (NTV), Kenya*

I have been in the newsroom since 2010. However, it was not until 2013 that I started reporting on biotechnology. Since then, I have extensively and authoritatively reported on biotechnology. I am so engrossed in reporting on biotechnology to the extent that my bosses sometimes mistake me for being a biotech crusader. I am proud that my people including my colleagues consider me an authority in biotech reporting.

But this status has not come easy – I attribute the repute to a number of factors: First, my passion for excellence in reporting. Second, my desire to understand the subject: I have invested a lot of my time in reading and interacting with biotech experts to really understating the science of biotechnology – indeed, I have read a lot on biotechnology to the extent that my editors ‘accuse’ me of speaking like a scientist, something I am really proud of, and yes, I am indeed very knowledgeable on biotechnology. Thirdly, I find it fun and interesting – the ability to translate a very technical subject into what our ordinary viewers can comprehend.

I have also been very lucky to have a very supportive editor despite his cautious approach to biotechnology. Although I am a business reporter, he has helped me specialise in agriculture, just like my colleague reporters on the business desk who he encourages to specialise in particular areas. It is through my passion and dedication to excellence in agricultural reporting that my editors created a weekly features program on Friday, *Food Friday*, through which I have extensively covered biotechnology.

I believe my factual reporting has helped me develop the much needed trust and rapport with scientists researching on biotechnology who are now more than willing to share their research work and to discuss any emerging issues on biotechnology with me.

The challenge I have come across is when I try to balance the story. While the proponents of biotechnology speak from a scientific point of view, the antis argue from an emotional point of view, not a very knowledgeable point of view. For instance, the people on the street will purport to know GMOs but when asked to explain, they will tell you they are those products that give you cancer when you eat them, will make you develop two heads and all the propaganda rubbish spawned by antis about GMOs. This is because many of them have not taken the initiative to read the science of GM. They are echoing what someone else said about GM. This is my biggest problem when it comes to balancing the story.

It is very difficult to get a very scientifically knowledgeable person who is ant-biotech. And as much as I am supposed to tell both sides of the story, I am obliged, as a science journalist, to report factually, not provide information that I know is wrong for the sake of balancing a story. This is one of the reasons that I am mistaken for being a biotech crusader.



And this is where I have issues with some journalists reporting on biotechnology. I am not impressed that majority of them do not take the initiative to corroborate whatever the anti-biotech lobbyists say. Some of the articles indeed look like press releases.

Although I have not received any formal training on biotechnology or reporting on biotechnology for that matter, I strongly believe that reporting on biotechnology in Kenya can be greatly enhanced with a concerted effort to train journalists.



## Unexploited opportunity to report on biotechnology

*Pauline Wairimu, Presenter/producer, Coro FM, Kenya Broadcasting Corporation*

Although I have been a radio presenter, reporter and producer of a daily agricultural program with the state broadcaster – Kenya Broadcasting Corporation (KBC) – for over 15 years, I have never reported on biotechnology. In fact, I first heard about biotechnology in 2008 during the parliamentary debate on the Biosafety Bill 2008.

Although I have attended numerous courses on agricultural reporting, like one organised by the British Broadcasting Corporation (BBC), none of them touched on biotechnology. Indeed, the first ever meeting I heard talk on biotechnology was the 2nd African Conference of Science Journalists held 14–15 October 2014 in Nairobi organised by the Media in Environment, Science, Health and Agriculture (MESHA).



This conference stirred my interest in the technology. I need information from credible sources to help me understand the technology and effectively report on it. More importantly, I need resource people with deep knowledge and understanding of the technology who can articulate the issues during live interviews.

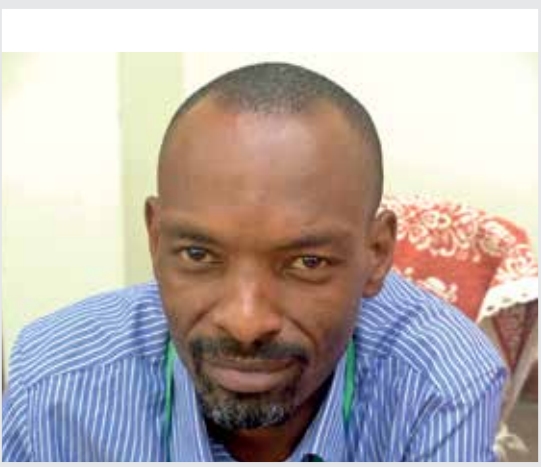
The Agriculture Magazine that runs on prime time, 20:00-21:00 hrs, focuses on livestock on Mondays, horticulture on Tuesdays, food crops on Wednesdays, and cash crops on Thursdays. The program that is broadcasted on KBC's Coro FM in the local Kikuyu dialect has a daily following of over 2 million listeners.

This is a great opportunity to report on biotechnology more so considering the popularity of the program. The audience is very receptive to our messages and usually call in to get more information on where they can get the technologies that we air on the program.

My main challenge will be getting to the field to conduct interviews. For radio, voice matters most. It is therefore very important that we are involved in field activities as it is easy to record what farmers or agricultural experts are demonstrating. In most cases, I rely on facilitation from organisations.

## Science journalist yet to be appreciated in Kenyan newsrooms

*Geoffrey Kamadi, Freelance journalist, Kenya*



Science and technology has not been accorded the prominence it duly deserves in newsrooms in Kenya. I used to contribute science stories to a science pull-out in the *Daily Nation* known as Horizon that was published every Thursday. This pull-out used to carry serious science stories, so much so that it had become something of a brand name in its own right. However, the pull-out was scrapped for reasons that were not clearly defined. Attempts to replicate its content in one way or the other have either not succeeded or have failed to catch up.

While the level of prominence given to science and technology stories leaves a lot to be desired, coverage on biotechnology fairs a lot worse. Most reporting on biotech in Kenya borders on sensationalism, if not worse. One of the main reasons for this stems from the fact that reporting on biotech is done by reporters who might not appreciate that the whole subject and debate on biotechnology is far broader and goes beyond GM technology, which is but a component of biotech.

The shortage of specialised science journalists and editors in Kenyan newsrooms has not helped in correcting the inadequate level of reporting on agricultural biotechnology. The unfortunate thing is that many stories on science in general and biotechnology in particular often times will not be dealt with professionally during the editing process. That is why you will find that the best science journalists in Kenya are freelancers, who prefer working closely with international science editors who have a grasp on the issues like those at the Thomson Reuters Foundation. However I still contribute opinion pieces on science to the *Daily Nation* and *The Standard* newspapers in Kenya and among many other publications.

There is an apparent indifference by consumers of media content in Kenya, an indifference that has in part been created by the complexity and technical nature of biotechnology and failure of journalists to simplify it. This could be overcome by taking biotechnology stories down to the level of a lay person, by disaggregating the issues in a way best understood by them. It should no longer be a debate by and for scientists and researchers, but be made to sound like a language of the small-scale farmer or the vegetable vendor.

I am not only passionate about biotechnology but also fascinated by the science. I believe that Kenya has no choice but to fully apply science and technology to drive her development agenda, and biotechnology is a big part of that. It is a technology that is indispensable if agricultural productivity is to be improved, not least in a developing country like Kenya. It is also a topic that needs to be explored more. There are so many misconceptions about the technology, which indicates that the right information on the subject is not being disseminated.

## OFAB stirs biotech reporting in Ghana

*Caszanto Tong, Chief Reporter, The Ghanaian Times*

I have been a journalist for the last 16 years. But it was not until three years ago that I was introduced and interested in science and biotech reporting, thanks to Dr Margaret Atikpo, Ghana focal person for the Open Forum on Agricultural Biotechnology in Africa (OFAB), and Mrs Linda Asante of Ghana News Agency (GNA) and vice president of African Science Journalists Association (ASJA).

Over the years, media coverage of science and technology and biotechnology in particular has been minimum, if not negligible, in Ghana. However, there has been a significant change with the entry of OFAB whose conscious efforts have seen a massive improvement in reporting on biotechnology through sensitisation workshops for journalists.

I attribute my understanding of biotechnology and the enhanced reporting on the subject to the numerous local and international biotech workshops and trainings I have attended over the last three years, the most recent being the one in Kenya organised by MESHA. These workshops have helped me developed a strong belief that the technology can significantly contribute to food security in Africa. I am very confident that biotechnology holds the key for agricultural success of Ghana.

I have had a lot of latitude to attend science programmes. The leadership of OFAB and other well-meaning science research institutions should intensify these education and sensitisation programmes on biotech for Ghanaian journalists.



## Need to train Nigerian journalists to improve coverage of biotechnology

*Abdallah el-Kurebe, Regional Editor of Newswatch Magazine, Nigeria*



Reporting on biotechnology remains a big challenge in Nigeria. Reporting on science and technology and biotechnology in particular has largely been 'eventorial', characterised with 'he said', 'they said' kind of articles, devoid of any elements of analytical, narrative or investigative journalism.

I see no better way of overcoming this challenge than training. My belief has always been that when you educate a journalist about anything, he becomes more knowledgeable about it than everybody else. When he is trained, he gets to know the issues in biotech and then communicates in clearer ways than even scientists could. For training is what has built my capacity to understand science issues and authoritatively report

on them. If it were not for the training I would not be the Regional Editor for Katsina, Kebbi, Sokoto and Zamfara states in Nigeria, or the Secretary of Sokoto State Council, member of the National Executive Council of Nigeria Union of Journalists (NUJ), and president of the African Journalists Network for Agriculture (AJNA).

I had little knowledge of biotechnology when I started reporting on it in 2012. But I am no longer a greenhorn in biotechnology and reporting on it. I attribute my understanding of biotechnology and my in-depth reporting on science and technology in general, and biotechnology in particular to the numerous trainings I have attended in Nigeria, USA and UK within the two years I have been reporting on biotechnology.

I was first introduced to biotechnology through the Media Fellow of Biosciences for Farming in Africa (B4FA) from 2012 to April 2014 comprising a series of workshops: Media Fellowship Training and Dialogue Workshop on Plant Breeding, Genetics and B4FA, the International Institute of Tropical Agriculture (IITA), Ibadan - September 2012; B4FA Media Development Fellowship Training workshop on Plant Breeding, Genetics and B4FA, Abuja, 17-22 March 2013; B4FA Media Fellowship Master Class, 17-20 November 2013 - Lagos; and B4FA Media Fellowship training and visits in Cambridge and London from 6-12 April 2014.

I completed the B4FA Media Fellowship with distinction and received the overall best award from with 'Best Body of Work - In Depth Coverage'. Other trainings I have attended include: Training Workshop for Investigative Journalists on Freedom of Information Act (FOIA) 2011, Kaduna, May 2012; World Food Prize Dialogue, 11-21 October 2013 - Des Moines, Iowa, USA; and 2014 American Association for the Advancement of Science (AAAS) Meeting, Chicago, USA - 13-17 February 2014.

Intensification of media training for journalists is important in improving biotech reporting in Nigeria. This should be complimented with facilitation to attend

international conferences for opportunities to talk to scientists and share experiences with fellow journalists.

Scientists 'fear-attitude' to journalists is another challenge that could be overcome by trust and access. There is therefore need to develop and implement strategies to ease scientists-journalists hard relationship, consequently making biotech reporting more attractive. Many journalists are more interested in reporting politics and other 'lucrative' beats as the sources are more willing to be interviewed and even go further to appreciate the effort through the brown envelope, a big incentive to many journalists.

These challenges are the reason why journalists in Nigeria, save for the African Journalists Network for Agriculture (AJNA) which has membership in Nigeria, Uganda, Tanzania and Ghana, have not exploited the numerous opportunities to authoritatively report on biotechnology.

This lack of in-depth reporting on biotechnology is a big disservice to Nigerians as the journalists are failing in their societal obligation to inform and educate the public on such an important technology that has serious implications on the future of the country's agriculture and food security. No development occurs in any country without science and technology. Therefore, as a developing country, Nigeria would only attain the feat of development through the application of science and technology. In a world threatened by population explosion and the need for availability of food for all, modern agricultural biotechnology is not only important but also the most desired necessity.

## Great opportunities to report on biotechnology in Uganda

*Lominda Afedraru, Freelance science writer, Uganda*



Uganda has more than enough opportunities for journalists to report on biotechnology. For one, there is political good will. The biotechnology Policy and Bill have the backing of the political ruling class and the government because it is a public Bill which was tabled in Parliament by the Ministry of Finance. In addition, the numerous on-going genetic engineering research activities across the country are a good source of stories: cassava resistant to cassava mosaic virus and the cassava brown streak virus; orange fleshed sweet potato; nitrogen efficient rice; water efficient maize; maize resistant to stem borers (*Busseolla fusca*); banana resistant to bacterial wilt and nematodes; and a Vitamin A enriched banana among others.

As a freelance science journalist corresponding for various publications in Uganda including *Daily Monitor*, *Biovision* (that focuses on biotechnology), *Agribusiness Magazine* and *Pathways to Productivity Blog Post* in the USA, I have taken full advantage of these opportunities during my science journalism career that spans over 10 years.

I was introduced into journalism in 2004 by a friend who worked with the *Daily Monitor* where I started writing on legal issues. However, I did not get the satisfaction or joy in writing on legal matters. But instead of venturing into business where I would naturally fit – considering my undergraduate studies in economics – I switched to science writing in 2005 and discovered my passion for science. I got immersed in science reporting, consequently becoming one of the authoritative science writers in Uganda.

My first encounter with biotechnology was when I attended an agricultural training at the International Livestock Research Institute (ILRI), Nairobi that was organised by AATF. I found the biotechnology sessions very interesting. Biotechnology became my official beat, writing extensively on the subject. My editors recognised my efforts and rewarded me with a column on science and technology. The column did generate a lot of interest within newsrooms and the public in general. The management of the *Monitor* realised the importance of agricultural reporting and eventually created a pull out on agriculture – ‘Agricultural Farming’, now the ‘Seeds of Gold’.

My efforts to report on biotechnology have been recognised and appreciated within and outside Uganda. In 2010, I was the overall award winner on reporting on biotechnology in Uganda. I won two more awards in 2014: Biosciences for farming (science journalism award), Cambridge, UK, and the Cassava Vircan Projects Award of the National Crops Resources Research Institute (NaCRRI), Uganda.

I attribute much of my understanding of the subject and effective reporting to the numerous trainings I have gone through, particularly the Media Fellow of Biosciences for Farming in Africa (B4FA) from 2012 to April 2014, funded by Bill & Melinda Gates

Foundation (BMGF) that purely focussed on biotechnology. This really improved the coverage of science reporting in the country. It really helped the media houses to appreciate biotechnology. Other players and stakeholders in the biotechnology sector should build on this initiative and take biotechnology reporting in Uganda to the required standards. There should be a sustained effort to ensure that as many journalists as possible across the media houses receive regular training on biotechnology and opportunities to attend biotechnology conferences, workshops and other events. Even for those now considered experienced like me, we still need refresher courses on biotechnology.

But this effort should only target those with an interest and willing to learn about the technology. For instance, some journalists who had enrolled in B4FA dropped out due to their biases against biotechnology, others due to their failure to comprehend the science and lack of the initiative or interest to learn the subject.

Another challenge in reporting on biotechnology is that most journalists are yet to cultivate the necessary trust and rapport with scientists in Uganda. Some scientists, on the other hand demand to review the copy before it is published which is utterly against journalistic ethics; some editors, especially those against the technology, or who simply do not understand the issues in biotechnology are notorious for killing the stories. Another major challenge is the limited resources in the newsrooms that limit individual initiatives on biotechnology. Journalism and the beats you take depend on the resources available to you.

I also believe in mentoring programs and that is why I am using my experience and knowledge to mentor other journalists at the *Daily Monitor* and members of the associations I belongs to: African Journalists Network for Agriculture (Secretary General); Uganda Science Journalists Association (Secretary General); and Africa Federation of Science Journalists (Treasurer).

## Inspired by the need to inform and educate farmers

*Isaac Khisa, The EastAfrican, Kampala Bureau, Uganda*



I grew up in a village that had a lot of challenges including access to information that could lead to the development of the populace. We relied on radio stations that hardly provided useful agricultural information. We would watch helplessly as disease and pest outbreaks ravaged our maize, tomatoes, and cabbages in the field.

I decided to either become an agricultural officer or a journalist after school. My belief then was that becoming an agricultural officer or a journalist would make me more knowledgeable about crops and good agronomic practices, knowledge I would then pass on to our farmers who needed it most to increase and protect their produce.

As the years went by, I gravitated towards journalism, with the view that it will give me a wider platform in linking the country's agricultural research centers and scientists, educating farmers not only on how to practice better farming methods in order to get higher yields but also inform them on the available market opportunities for their produce. I consequently enrolled for a three-year journalism and communication program at Makerere University in 2006.

While a student at the university, I reported on general news stories for the institution's online newspaper, *The Ivory Post*, as well as for Uganda's leading independent newspaper, the *Daily Monitor*. This marked the start of my journalism career, working as a freelance reporter for the *Daily Monitor* starting 2010. I would cover general news, politics, education, business and environment.

After more than a year of reporting, I was selected to participate in a nine-month media lab training program in Nairobi – a special media training program ran by the Nation Media Group. Upon returning to Uganda, I was posted to *The EastAfrican* – a sister publication of the *Daily Monitor*. At *The EastAfrican*, I focused on business and agriculture reporting.

Fully aware of my background, a family that relies on agriculture, I took up agriculture as my new beat in a bid to not only to inform but also to educate farmers about the modern farming methods, new seed varieties, market opportunities and the outbreak of new diseases and the possible remedies.

In 2012, I was selected to participate in the UK-based Biosciences for Farming in Africa (B4FA) training program in Kampala. The training took almost three years during which I interacted with scientists and other resource persons in the field of biosciences and participated in field trips in and out of Uganda. This was also my starting point for reporting on biotechnology. This opened my mind, widened my knowledge and improved my reporting on biotechnology. B4FA was funded primarily



by the John Templeton Foundation and the Malaysian Commonwealth Studies Centre in Cambridge UK.

Within a year after completing the training, I was recognised by Uganda's National Agricultural Research Organization (NARO), for my coverage of agricultural issues. I was crowned the Water Efficient Maize for Africa (WEMA) journalist of the year 2012 and in 2014, I received recognition for being the best business and economic journalist for the year 2013 by the African Centre for Media Excellence, Uganda. In addition, I was also the best business writer during the three-year Biosciences for Farming in Africa program.

### **My take on modern agricultural biotechnology**

The fast changing weather patterns coupled with the increase in population pressure requires urgent solutions to address issues of food security. Farming in eastern African is still characterised by use of poor quality planting materials, depleted soils, limited water resources and losses due to pests and diseases.

In view of the challenges involved, all existing methods to improve agricultural productivity, including modern agricultural biotechnology, deserve serious consideration. Science and technology, especially biotechnology, has a major role to play in Uganda's economic development.

### **Media reporting on science and technology in general and biotechnology in particular**

Reporting on science and technology and biotechnology in particular has in the past two years had a tremendous improvement in Uganda. This is attributed to the media trainings on the subject, and the trust that has been built between the country's scientists and the journalists. More importantly, the trainings have helped journalists factually report and shape debates on biotechnology.

### **Challenges in reporting on biotechnology**

Initially, there was mistrust between scientists and journalists for fear that the latter is unlikely to grasp the issues and report factually. However, with more journalists receiving training and improving on the quality of the coverage, more scientists have opened up and are always willing to give out information on their projects.

The biggest challenge now is some decision makers who are ill-informed about the biotechnology. It is for this lack of knowledge on biotechnology among some decision makers that Parliament is yet to pass the Biosafety Bill. This calls for more sensitisation meetings between scientists and policy makers to iron out fears about the technology.

## Encouraging trends in reporting on biotechnology in Uganda

*Ronald Kulabako Kato, Radio and TV producer, program host and reporter, New Vision, the Vision Group, Uganda*



There have been encouraging trends in reporting on science and technology and biotechnology in particular in Uganda in the recent past. The media in Uganda is now embracing and giving more space and time to science and technology articles, including those on biotechnology. For instance, all the Vision Group's five newspapers and over four radio and TV stations have agricultural pull outs and programs.

However, there is one challenge to exploiting these immense opportunities on reporting on biotechnology in Uganda - the community of journalists reporting on science is still very small. Many still think it is too complex and mentally draining to report science.

Indeed, science can be complex and very dynamic. One needs to keep abreast with the latest findings and twists. Journalists need to train. Synergies are needed between journalists and between journalists and scientists to improve science communication and reporting.

I know the impact of value training on effective reporting especially on science and technology, being a beneficiary of various journalism trainings such as those by the Thomson Reuters Foundation Training on Climate Change reporting, and business reporting; and the Biosciences for Farming in Africa (B4FA) training that was funded by Bill & Melinda Gates Foundation (BMGF).

Journalists who have been adequately trained on modern agricultural biotechnology are more likely to engage in objective and candid reporting and not sensational debates.

I indeed attribute my enhanced reporting on biotechnology to these trainings, but also very important is my passion for biotechnology, my desire to understand biotechnology and my desire to tell stories and to report the under reported stories. I believe journalists should be able to see things ordinary people don't see and to report those things to help shape public debate, policy and legislation.

Choosing science journalism over other beats when I joined the Vision Group in 2009 has possibly been the best decision of my journalist career. Science and technology will drive innovation, employment and growth in Uganda. The speed and precision with which biotechnology solves complex problems is amazing. It is the best thing to happen to agriculture especially in Sub-Saharan Africa, where poor farmers struggle to farm amidst challenges of climate change, pests, and diseases.

## Partnering with government to promote reporting on biotechnology

*Maria de Fatima Cossa Dava, Producer, Radio Mozambique*

Everyone – the government and the people of Mozambique – realise that the future of the country lies in science, innovation and technology. It is through this understanding and realisation that the government established the Ministry of Science and Technology and went further to develop a 10-year strategy to popularise science, innovation and technology through various channels, key among them the media. These are what inspired and motivated me to start the Science and Technology Program on TV Mozambique in 2002.



The program that initially only ran on TV Mozambique is now also reproduced on Radio Mozambique, courtesy of the efforts of Maria de Fatima Cossa Dava, Producer, Radio Mozambique who joined the station as a volunteer announcer on a children's program in 1980. The science and technology program on both TV and Radio Mozambique is a 30 minute weekly program produced in collaboration with Ministry of Science and Technology. It covers news, commentaries, and analyses on innovation, science and technology. It is broadcast in Portuguese, English and local languages. The idea to replicate the program on radio was driven by the fact that radio is more popular and affordable than TV.

Popularising biotechnology in Mozambique has become a very big issue. The problem is that most journalists report on the events but not on the science and not the issues, a problem Antonio attributes partly to lack of understanding of the subject by the journalists.

To report on science, you must first understand the science, you must be knowledgeable. How do you expect me to report on Doubled Haploid Technology for instance, if I do not understand it? I have taken up the initiative to sensitise and educate other journalists on reporting on biotechnology. This has resulted in more factual reporting on biotechnology.

There has been a lot of misinformation on the technology with some anti-GM activists claiming that the products are vaccinated. But I am now happy that our efforts to educate journalists and the public appears to be bearing fruit as more and more people are now appreciating the technology. This has even been boosted by the government approval of the biotechnology policy. Our dream is to have journalists and the public have one language of biotechnology in Mozambique.

I totally agree with my colleague, Maria de Fatima Cossa Dava, Producer, Radio Mozambique on science reporting goes beyond just knowing the science. As she aptly puts it, you must have the passion for science and science reporting. Maria is the second person who has continued to passionately report on biotechnology from among 15 journalists that benefitted from a two-week training on science journalism.

To effectively report on science, you must also develop skills to translate and simplify the otherwise technical scientific language so as to effectively communicate with the general populace. It is indeed a skill that Maria has perfected over time. 'I had initial difficulties in simplifying the technical issues and language. But now I have a way out: I talk to diverse groups, experts and sources. The most important thing is to relate the topic to issues affecting the community. Start with the community, then talk to experts on the issue.'

It is a tale of passion for and excellence in science journalism for Maria and me. I initially trained as a cameraman in 1998. However, I was so passionate about reporting on life changing technologies that it only took me two years to be promoted to a reporter/editor and assigned the science beat. Maria is now currently undertaking a bachelor's degree in Informatics Engineer at Polytechnic University.

Maria joined journalism when she was still a child. 'My family thought I was too talkative and had what it takes to be a radio presenter. They teased me into joining the radio. And as fate would have it, I joined a children radio program as a presenter on voluntary basis. As my popularity on the program grew, I started writing children stories for both radio and newspapers. It was not long before I was promoted to radio producer.'

Maria adds: 'It was a tough beginning. To me, this was a calling. As a child, I had no basic training in journalism when I joined radio. I worked without any pay. But I have invested heavily in becoming a professional journalist and a science journalist for that matter. I have attended several courses on radio journalism, investigative reporting, practical and online courses. I have a master's degree in interpretation/translation of English and Portuguese. I am now undertaking a postgraduate degree in Foreign Policy and Development at International Relations Higher Institute.'

We are both categorical that the only way to improve the level of biotechnology reporting in Mozambique is through training of the journalists in science reporting and biotechnology. The journalists must go an extra mile to strike a good working relationship with scientists. But this does not have to be one way. Concerted efforts should be made to also train the scientists to appreciate how the media operates, understand the role of journalists and more importantly, help the journalists understand their work so as to effectively report on it.

## Applying the magic of science journalism in reporting on biotechnology in South Africa

*Mandi Smallhorne, Freelance journalist and president of South Africa Science Journalists Association*

The chance to tell stories of humanity in Africa is what makes other humans in other parts of the world to feel like us. Science journalists in Africa have a chance to make the rest of the world to understand Africa as a continent of talent, energy, resources, and happiness, not a continent ridden with strife, violence and impoverishment. I want the story of Africa, including the science of Africa, to be narrated and heard in a magical way.

It is this magic of science journalism that is indeed shaping the reporting on biotechnology in South Africa, relating the science of biotechnology to the social, cultural and economic landscapes in South Africa. We are fortunate that the country has commercialised biotechnology. There are GM products on the market. It is not unsubstantiated science any more. Unlike in other countries with no GM products on the market, journalists in South Africa have the benefit to report on the reality, to tell stories of farmers reaping the benefits of the technology, the farming of the GM products, the trade issues as they emerge.

I am very much impressed with the trends and level of science journalism in South Africa. Reporting on biotechnology is fairly balanced, usually reflecting the reality. This can be attributed partly to the good rapport between journalists and scientists in the country.

However, there is need to train business and general beat journalists on biotechnology to help them understand how the science works. All journalists in newsrooms across Africa should have at least some basic training in science journalism to gain some basic understanding of the science and the reporting on the science to avoid horrendous reporting on biotechnology. And this is my goal as president of the South Africa Science Journalists Association.

There are indeed some legitimate concerns with the technology hence the need to be factual. You need to be fair and reasonable, you do not have to be a biotechnology evangelist, hiding the concerns and only shouting the benefits. For instance, there is legitimate research coming out pointing out that the GM crops are developing resistance to some of the insect pests. These need to be reflected in the reporting. Labelling is another hot issue in South Africa. One of my problems is why biotech companies in South Africa do not want their products labelled, yet they are being widely used and consumed. It makes them look bad if they do not label. Woolworths, one of the leading supermarket chains in South Africa, do label their GM products.

However, I am concerned with a section of journalists mainly from magazines,



tabloids, bloggers and twitter communities, who are not reporting on the science of biotechnology but mainly focussing on the non-science, the sensational aspects of the technology, churning out enormous amounts of misinformation about the technology. They seem to take the words of the anti-GM activists as the gospel truth.

You do not have to be a scientist to be a good science journalist. But you need passion for science and reporting on science. I have unending passion for science, a passion for knowing everything that science has to offer. I have taught myself to understand science. I want to die knowing that I know science and I have used the science to help others. I have read 9,000 books, 3,000 of them being serious science books.

With an undergraduate degree in English and drama, I was destined to become a teacher. But as fate would have it, I ended up in insurance where I would discover my talent in journalism. The insurance company thought it wise to give me another responsibility: edit their magazine. After several years editing the insurance magazine, I moved on to become the editor of a trade magazine, later on a consumer magazine and finally a health magazine that would define my future in science journalism and discover my passion for science. I am very grateful to Monica Farall, a health editor with South Africa Broadcasting Corporation (SABC) Radio who really mentored me into health reporting in 1993.

# Challenges, opportunities and strategies on biotechnology reporting in WEMA and OFAB countries

AATF, through its two projects, Open Forum on Agricultural Biotechnology (OFAB) and the Water Efficient Maize for Africa (WEMA), organised a roundtable forum for journalists across Africa to share experiences on reporting on biotechnology, and explore opportunities and strategies to increase coverage of biotechnology in Africa. This was in realisation that media reporting is one of the most effective means to educate the public about new and emerging technological innovations as well as bioscience in general. The discussions centered on three key areas: challenges they face in reporting on biotechnology; opportunities they can exploit to report on biotechnology; and strategies to improve quality of media coverage of biotechnology.

The event also provided AATF an opportunity to create synergies with a group of journalists that are better informed about the biotechnology, able to source, eager to research, write and publish a balanced story on biotechnology. According to AfricaBio (2012), events such as this are important for advancing and expanding the coverage and scope of biotechnology coverage in Africa to reinforce public and decision-makers awareness, enthusiasm and acceptance of science innovations and development.

### Summary of cross-cutting issues

This is a summary of issues raised by the journalists during the roundtable discussions that focused on the challenges, opportunities and strategies for improving both the quality and quantity of media coverage of biotechnology.

#### **Challenges**

*Impartiality in reporting/adhering to media ethics:* while the traditional media (newspaper, TV) – a once primary source for news and information – strive to adhere to established practice and the professional ethics of journalists in reporting, the rising social media and the ‘citizen journalist’ hardly respect these professional ethics. Sometimes journalists readily dismiss certain informants as untrustworthy while implicitly trusting others, hence failing to conduct an objective investigation. Storylines are often designed to be inflammatory to attract readers. These storylines may be great for journalism but they are not so great for science or evidence-based narratives. There is clear need for journalists to adhere to journalism ethics when reporting on biotechnology. This is science and there is no room for sensational reporting, being bribed to either report positively or negatively.

*Cultivating trust with scientists:* The relationship between journalists and scientists is characterised by tension and mutual suspicion. Journalists perceive scientists as inaccessible and not sufficiently cognisant of the importance of engaging with the media. Scientists on the other hand perceive journalists to

be unreliable in accurately reporting on their research results. This is partly a result of fundamentally differing cultures, with academics structured by patient collection of scientific evidence and journalists structured by tight deadlines and immediate results. Scientists fear that their work will be misunderstood or misrepresented by the media – and this is a sound fear often based on previous experience.

*Online forums/social media (awash with unsubstantiated reporting):* While the benefits of the Internet and social media are immense, it has also become a fundamental 'misinformation channel'. While there is inaccurate and often dangerously misleading information on the Internet, the real misfortune is the lack of 'policing' or 'moderation' of online information. The rise of the citizen journalist has created an environment where distorted information about food and the food production system rapidly circulates. This environment has led to staunch and vocal opposition to products of genetic engineering.

*Academic debate:* There is fear that the debate is becoming academic losing touch with the realities on the ground and therefore making it a bit difficult to sell stories to editors or to interest the general audience and farmers.

*'Eventorial' reporting:* some journalists, particularly those who do not understand biotechnology have a tendency to report on the event rather than on the issues discussed at the event. It is largely characterised with 'he said', 'they said' kind of articles, devoid of any elements of analytical, narrative or investigative journalism.

*Technical language:* The language of biotechnology and science in general is rather technical and therefore requires simplification, translation, popularisation, and repackaging to make the articles more understandable and appealing to a non-technical audience.

*No products on the market yet, only trials:* Except for South Africa, Burkina Faso, and Sudan, countries in Africa are yet to commercialise biotech crops. As such, journalists are confined to reporting on the progress of the trials and the promise the crops hold. It is not like in the three countries where journalists report on reality, on the commercialised products: it is no longer just the science and the potential benefits – it is the product and the tangible benefits.

*Anti-GM activism and influence on reporting on biotechnology:* There is a strong anti-GM movement in Africa that is targeting decision makers and journalists. Unfortunately, a number of journalists, particularly non-science journalists, have fallen prey to these activists and are publishing unsubstantiated claims about biotechnology and the derived products.

*Journalists on hire:* There are some journalists who receive monetary inducements from anti-GMO activists to write negative stories on biotechnology. This group of journalists range from the non-paid freelancers/correspondents to even the highly paid editors. They are mercenaries bent on derailing the biotech agenda. There is also a similar group that will demand money from organizers of an event and threaten not publish the story on biotechnology unless they have been paid.



*Low understanding of biotechnology among journalists (including those on agricultural beats):* This greatly compromises the quality of articles published. Many stories are also killed as the reporters and editors fail to comprehend the issues. It is this low understanding that sometimes leads to publication of non-factual and sensational articles. It is difficult to report on a subject that you do not understand.

### **Opportunities**

*Vibrant research activities in the countries:* The numerous research activities and sites provide great opportunities for story ideas and leads. Also linked to the vibrant research activities is the large number of the associated researchers who are a great source of credible information and expert opinion. Regular visits to the research sites and activities provide journalists with opportunities to develop contacts and build trust with the scientists involved in the research activities, resulting in a willing mass of collaborative scientists.

*Three countries have already commercialised biotech crops:* South Africa has commercialised cotton, maize and soybean, and Burkina Faso and Sudan cotton (Table 1). Journalists have the opportunity to tell stories – real stories – of how the crops are benefitting the farmers and the consumers. They are stories of real science, real products and actual benefits. Journalists in these countries have leeway to focus on various aspects of the products – from research, benefits, trade, to the social and cultural aspects of biotechnology. These countries also offer journalists from other countries opportunities for study/seeing-is-believing tours and report back in their respective countries on their experiences: it is no longer just the science and the potential or perceived benefits; it is the product and the felt benefits.

*More media houses according more space to biotech:* NTV, Kenya; *The Herald*, Zimbabwe; the Science and Technology Magazine of TV and Radio Mozambique; and Uganda's *Daily Monitor* have weekly programmes and columns on biotechnology. These are but a few examples of media houses in Africa that have made deliberate efforts to have sections focussing on science and biotechnology in particular. These are good opportunities to channel biotech articles and more importantly, they also stimulate interest among the journalists to contribute to such columns and programmes.

*Governments in the region embrace biotechnology:* Several African countries have put in place policies and regulatory frameworks (Table 2) to support the responsible and safe use of biotechnology, a clear indication of their intentions to embrace biotechnology. Many of them are conducting research on biotech crops with three of them – South Africa, Burkina Faso and Sudan – having already commercialised the biotech crops. The commercialised products, the on-going research, the formulated and the formulation process of policies and regulatory frameworks offer story ideas and, consequently, opportunities for reporting on biotechnology.

*Evolution of the debate:* The debate is no longer only on the science of biotechnology. It has evolved into an ethical, philosophical, social and trade debate. It is this

evolution that has resulted in the shift in opinion among UK journalists – from those highly opposed to the technology to those that are highly embracing the technology in their reporting. Instead of focussing on the science as it was before, they are now focussing on trade.

*Biotech is about real people – the cultural and human issues:* Reporting on the cultural and social aspects of biotechnology are opportunities journalists are yet to fully exploit.

*Organisations investing in training journalists on biotechnology:* various organisations have programs on training journalists on biotech reporting such as the B4SA, ISAAA and AATF. There are also numerous workshops and seminars on biotechnology that journalists can attend to improve their understanding of biotechnology, learn the latest developments in the sector and develop the contacts for further collaborations.

## How to improve biotech reporting

*Capacity building:* Every journalist who strives to report on biotechnology should have at least a basic training in science reporting. There is also need to facilitate journalists to attend biotech workshops, seminars and training events to help them advance their knowledge of biotechnology and keep abreast with the current trends and issues in biotechnology. Journalists that aren't educated are more easily swayed, will more easily accept marketing pitches, and won't look at relevant issues such as whether small scale farmers can afford seeds. They are also more likely to fall prey to unscientific anti-GMO arguments. It is very important that editors are included in these capacity building initiatives.

*Provide grants/facilitate journalists to undertake field work (where the media house might not be in a position to provide the facilitation):* In most newsrooms, biotechnology, is not a high profile beat. Journalists who have specific interest in following up biotechnology stories in the field have difficulty convincing or selling their ideas to the editors and having the editors commit resources for field work but are more willing to publish the story from the field. Organisations like AATF should foster leadership and create opportunities for those with the interest, the credibility and the means to be a voice or advocate for biotechnology.

*Help nurture science journalists associations:* Members of these associations have come together because they believe in championing science journalism. It is an indication of their interest in reporting on science and also biotechnology. There is therefore a need to build and work with these groups of journalists/associations, help them to be better informed about the biotechnology, and help them source for information and experts. This will greatly assist the journalists to research, write and publish balanced and authoritative stories on biotechnology.

*Facilitate platforms for networking:* There are very few formal networks between journalists and biotechnology scientists in Africa. Journalists appear to relate to individual scientists through informal networks built over time through personal relationships. Personal networks play an important role in influencing

opinions, attitudes and behaviours of individuals. However, close personal networks leave one open to information from individuals and organisations that may have ulterior motives or hidden agendas.

There is need to have platforms where journalists can exchange ideas with fellow professionals and experts on topical issues in biotechnology. The networks are also important in sharing credible information and finding sources that present this information clearly.

These linkages are important for establishing credible sources of information and resources for both the public and journalists. Interaction with media in the form of briefings, seminars, workshops, and visits or tours is regularly conducted to update journalists and broadcasters on the latest developments on biotechnology. Scientists and academics involved in biotech research and development activities as well as experts in communication and socio-economics can provide inputs to increase the knowledge of media practitioners and provide them with possible story pegs or leads for articles and broadcast materials.

*Devise strategies that would make institutions/resource persons/experts to promptly respond to media enquiries:* For instance, identification of biotechnology spokespersons in institutions dealing with biotechnology to ensure constant flow of daily or frequent flow of biotechnology information enquiring journalists. The communication channels and the spokespersons could also be used for verification of facts, reporting of upcoming events and releases.

## How journalists can help shape policy

It is evident that media reports have a huge influence on decisions of policy makers. For instance, journalists in Tanzania have been very critical of the government's Strict Liability Clause in the Biosafety Law that was a major barrier to research and development of GMOs in the country. Through concerted reporting on the subject, the government has now revised the clause to accommodate research and development of GMOs. In Kenya, journalists have the opportunity to question the government's uninformed decision to ban the importation of GM products and hence influence the reversal of the ban. Journalists from countries that are yet to formulate the necessary laws and regulations necessary for the commercialisation of GM crops have the opportunity to highlight how the governments are losing out on biotech and the unfortunate implications on the much-aspired agricultural transformations.

## Country specific issues

Below are summaries of issues that the journalists considered to be specific to their countries.

### Uganda

#### **Challenges**

- *Low understanding of biotechnology among reporters and editors:* Some editors, especially those against the technology, or who simply do not understand

the issues in biotechnology are notorious for killing the stories. Journalists who do not understand biotechnology are also notorious for distorting reporting.

- *Lack of trust and suspicion among scientists and journalists:* Most journalists are yet to cultivate the necessary trust and rapport with scientists. Some scientists, on the other hand, demand to review the copy before it is published which is utterly against journalistic ethics.
- *Activists influence:* Strong anti-GM activism that has penetrated some of the journalists reporting on biotechnology.
- *Limited support for field assignments especially from within the newsroom:* It is very difficult to convince editors to provide resources for field visits, especially to new sites that might generate interesting stories. It is even more difficult if the editor does not understand the biotechnology issues one is pursuing or exploring at the new sites.
- *Journalists taking position on biotechnology:* Ideally, journalists should not take sides in the debate. They are supposed to be impartial, concentrate on the issues of debate and seek expert opinion on the issue. But this is not always the case. Being human beings, they are sometimes inclined to support or oppose certain issues based on their professional understanding of the subject. While this is acceptable, it sometimes goes beyond the acceptance limits of professionalism and borders on activism, be it pro or anti.
- *The President's opinion:* The law and the law-making process, including that on biotechnology, is heavily shaped by the President's opinion. It is a big challenge and risk contradicting the president's opinion, and worse, if you are working for a state supported media. The government does not take lightly journalists and media houses that appear to be having different schools of thought from that of the President.

### **Opportunities**

- *Media-friendly environment to biotechnology stories:* Media houses such as the *Daily Monitor* have sections dedicated to agriculture, for instance, *Seeds of Gold*, *Biovision* (that focuses on biotechnology), and the *Agribusiness Magazine*. Journalists are finding it much easier to publish their biotech articles in these sections dedicated to agriculture.
- *Capacity building of journalists:* Journalists interested in biotech reporting should take advantage of the numerous training opportunities such as the B4FA. The numerous seminars and workshops in and out of the country present great opportunities for journalists not only to understand the subject but also keep abreast with the emerging issues in biotechnology.
- *Vibrant research activities in the country and a willing mass of scientists to talk to:* The numerous on-going genetic engineering research activities across the country are a good source of stories: cassava resistant to cassava mosaic virus and the cassava brown streak virus; orange fleshed sweet potato, nitrogen efficient rice; water efficient maize; maize resistant to stem borers; banana resistant to bacterial wilt, nematodes; and a Vitamin A enriched banana, among others. The numerous research sites provide great opportunities for field visits whenever there are activities going on and also developing contacts and building trust with the scientists involved in the research activities at the sites.

- Players in the biotech industry are opening up and willing to talk about the issues, opportunities and challenges in biotech.

## How to improve biotech reporting

- *Capacity building through training:* There are great improvements in reporting on biotechnology especially among those who have attended trainings both on reporting on biotechnology and biotechnology in general. However, there is need to extend and widen the target for the trainings to include editors.
- Sharing of information and knowledge on the technology among fellow journalists with the experienced ones taking up mentoring roles with the young and upcoming journalists.
- Building trust with scientists.
- Field exposure visits are a major boost to reporting on biotechnology.
- Organisations like AATF should work closely with journalist associations.

## Tanzania

### Challenges

- *Highly divided opinion among journalists:* This is partly driven by the raging pro- and anti-GMO debate. There are journalists who are very balanced and factual in their reporting on the technology, focussing on the issues. There are others who do not understand the issues and do not go the extra mile to understand it. It is a divided journalism spectrum pitting the knowledgeable, the science journalists against the ignorant and the lazy unwilling to learn the science of biotechnology.
- *Getting the right expert:* Sometimes journalist interview people who masquerade as experts on biotechnology leading to misrepresentation of facts and issues, and horrendous articles on biotechnology. A case in point is reporting verbatim on Vandana Shiva<sup>2</sup>, the self-proclaimed biotechnology expert.

### Opportunities

- There is a network of journalists who are now affiliated to or are members of OFAB. This is facilitating and helping in sharing of information among journalists on biotechnology.
- Farmers are highly receptive and have strong belief in media reports to the extent that they usually call in requesting for the reported products.

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2 [http://en.wikipedia.org/wiki/Vandana\\_Shiva](http://en.wikipedia.org/wiki/Vandana_Shiva)

## How to improve biotech reporting

- *Capacity building:* Most journalists' understanding of biotechnology is still low and hence need to make them knowledgeable on the subject and issues under debate. The training will not only help them to understand the technology, but also on how to repackage the information to relate to farmers' issues and be easily understood by the farmers and the general audience.
- OFAB should consider partnering with journalist associations in Tanzania.

### Kenya

#### Challenges

- *Late response from experts:* This is partially a result of fundamentally differing cultures. Academicians, scientists, institution and government resource persons and other key sources of information are driven by patient collection of scientific evidence and information, and governed by cautious and bureaucratic release of information. Journalists on the other hand are driven by tight deadlines and immediate results.
- *Conflicting positions from government agencies:* For instance, the Ministry of Health without much consultation issues a ban on importation of GM products based on unsubstantiated Seralini study<sup>3</sup> (which has since been retracted) while the Ministries of Agriculture and Science and the National Council for Science and Technology (NACOSTI) are openly against the ban since it goes against the government position on modern biotechnology.

#### Opportunities

- *Vibrant research activities:* These include: *Bt* cotton resistant to bollworms (completed CFTs, awaiting NPTs); GM maize trials are at an advanced stage (for resistance to stem borers and also tolerance to moderate drought); GM research on fortified sorghum enriched with Vitamin A; *Bt* sweet potato and *Bt* cassava resistant to cassava mosaic disease (CMD) and cassava brown streak disease (CBSD) – the two most destructive viral diseases of cassava – and *Bt* pigeon pea. The on-going research and the large (and willing to be interviewed) biotech scientists offer story ideas/leads and consequently, opportunities for reporting on biotechnology.
- *Official government position supporting biotech:* Key interviewees in government can openly talk about the technology without fear of contradicting their employer and being reprimanded. In addition, this open support also creates a conducive environment for a thriving the biotech industry/sector – another opportunity for journalists to report on the investments in the sector and the on-going activities. However, this appears to have been stifled by the ban on importation and consumption of GMOs

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3 The study, "Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize" claimed that herbicide-tolerant GM maize caused severe diseases and tumor growths in rats. Food and Chemical Toxicology (Elsevier) first published the article in September 2012, but journal retracted it in November 2013, following concerns about the validity of the findings it described, the proper use of animals, and allegations of fraud (Elsevier, 2013).

## South Africa

### Challenges

- *Labelling of GM products:* This is big issue in South Africa. But why not accept it like for other non-GM products? In any case, there are certain players who are already labelling their GM products, such as Woolworths (the biggest store chain in South Africa) with no reported adverse effects on their sales. While it is important that people know their choices, labelling should not be used as a tool to fight GM products or as punishment to those who trade in GM products.
- *Online forums/social media:* While the benefits of the Internet and social media (Facebook, Twitter etc.) are immense, they have also become fundamental channels of inaccurate and often dangerously misleading information on biotechnology, courtesy of lack of 'policing' or 'moderation' of online information. The rise of citizen journalism, as well the influence of celebrity, has created an environment where distorted information about food and the food production system rapidly circulates.
- *Academic debate:* There is fear that the debate is becoming academic losing touch with the realities on the ground and therefore making it a bit difficult to sell stories to editors or to interest the general audience and farmers.
- *A strong anti-GM movement in South Africa:* This is targeting decision makers and journalists. Unfortunately, a number of journalists, particularly non-science journalists, have fallen prey to these activists and are publishing unsubstantiated claims about biotechnology and the derived products.

### Opportunities

- *Biotech is about real people:* Journalists have a responsibility and an opportunity to take into account the cultural, economic and social aspects of biotechnology to expand their reporting beyond just the science.
- *Biotech products already in the market:* Journalists have the opportunity to tell stories – real stories – of how the GM crops (cotton, maize and soybean) are benefitting farmers, consumers and the country's economy in general. They are stories of real science, real products and actual benefits. Journalists in South Africa have the leeway to focus on various aspects of the products – from research, benefits, and trade to the social and cultural aspects of the biotechnology and the products.
- *Vibrant research activities:* South Africa is conducting GM research on a number of crops that include cotton, potato, Bulb flower, sugarcane, sorghum and maize. These on-going research activities and the accompanying large (and willing to be interviewed) biotech scientists offer story ideas and, consequently, opportunities for reporting on biotechnology.
- *Government fully supports biotech:* This open support creates a conducive environment for a thriving biotech industry, consequently creating opportunities for journalists to report on activities in the sector.

## How to improve biotech reporting

- Reporting of biotech the world over appears to focus more on the science GM crops yet the biotech industry is much more than just the science.

There is need to expand reporting to cover other aspects of biotechnology like trade.

## **Mozambique**

### **Challenges**

- *Technical language:* The language of biotechnology and science in general is rather technical and therefore requires simplification, translation, popularisation, and repackaging of information to make the articles more understandable and appealing to a non-technical audience.
- *No products on the market yet, only trials:* Journalists are confined to reporting on the progress of the on-going trials on GM maize resistant to stem borers and tolerant to moderate drought, and the promise the crops hold.
- *'Eventorial' reporting:* There is a general tendency to report on the event rather than on the biotechnology issues discussed at the event, especially among some journalists who do not understand the subject. It is largely characterised with 'he said', 'they said' kind of articles, devoid of any elements of analytical, narrative or investigative journalism.
- *A relatively new concept not understood by many:* There is generally a very low awareness and understanding of biotechnology among the general public in Mozambique. Many, even among the educated are not aware of the on-going research activities or even the government position on biotechnology. Unfortunately, majority of those who are aware of the technology have very low understanding of it, much of it being the misinformation being peddled by the anti-GMO activists. While this can be looked into as an opportunity to educate the general populace, it is a challenge as you are reporting on something that appears completely alien to them.

### **Opportunities**

- *Creating science desks/magazines in newsrooms:* Other media houses, particularly the private ones can emulate the state-owned Radio and TV Mozambique which have Science and Technology Magazine and create similar science desks/magazines that will greatly increase the coverage of biotechnology.
- *Participation in biotech events:* There is also need to facilitate journalists to attend biotech workshops, seminars and training events to help them advance their knowledge of biotechnology and keep abreast with the current trends and issues.
- *The on-going biotech research:* Through the WEMA<sup>4</sup> Project, Mozambique is conducting confined field trials on GM maize that is resistant to stem borers and one that can also tolerate moderate drought. There is also a large number of scientists and other stakeholders involved in the GM research – National Center of Biotechnology and Bioscience, under the Minister of Science and Technology; Institute of Agricultural Research of Mozambique subordinate to the Minister of Agriculture; National Institute of Health reports to the Minister of Health; and the Biotechnology Center at the

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4 wema.aatf-africa.org



University Eduardo Mondlane. The research activities and the scientists provide excellent opportunities for journalists to report on biotechnology.

- *Reporting on government policies, laws and regulations:* Journalists have an opportunity to critically review/analyse the documents, including the revised Presidential Decree<sup>5</sup> (that allows research, development and commercialisation of GMOs in Mozambique) and see how they impact on research and development of GMOs in Mozambique. In a country where awareness and understanding of biotechnology is very low, reporting on these documents presents the journalists with another opportunity to fulfil their obligation to inform and educate the public on the government's policies and regulations on genetic engineering.

## How to improve biotech reporting

- *Capacity building mainly through training:* Most journalists' understanding of biotechnology is still low and hence there is need to make them knowledgeable on the subject and issues under debate.
- *Simplifying the language:* Biotechnology is indeed a technical subject with a lot of technical jargon that is not understood by the general populace. It is important to simplify – translate and repackage – the otherwise technical scientific language to make it understandable by the general populace. Talking to diverse groups, experts and sources helps to simplify the language.
- *Making farmers relate to and appreciate biotechnology:* The most important thing is to relate the topic to issues affecting the community. For instance, when talking about *Bt*, talk about stem borers, their impact on maize yields and how other efforts to control have not been very effective and, now, scientists have come up with another very intelligent way of controlling the borers without the application of expensive insecticides. This is a subject most farmers are familiar with. Another way to have articles that farmers can relate to is first identifying the issues farmers are grappling with, talking to them about it and then later seeking experts to expound further on what they are doing to help farmers manage the issue.

## Zimbabwe

### Challenges

- *EU policy influence in Africa:* Technocrats in Zimbabwe tend to be swayed and very much influenced by positions taken by the EU. Unfortunately, the

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5 Mozambique has a Regulation on Biosafety related to the management of GMOS (Decree no. 6/2007, of April 25th) currently in place. However, due to certain limitations in the regulations, the Minister of Science and Technology (MST) requested a complete review of the Decree. The review, which finished in December 2011, recommended complementing biosafety rules that will contribute to the establishment of an operational biosafety regulatory framework in Mozambique. Later in 2012, another review was done by the African Biosafety Network of Expertise (ABNE) to strengthen the liability and redress articles of the draft regulations. Expectations are that the revised Decree with complementary rules will be reviewed by MST and his legal team by mid November 2013. If approved by the MST, it will move forward for approval by the Council of Ministers for national consideration. This could allow for the planting of GE field trials for the first time in Mozambique (GAIN, 2013)

EU experts tend to undermine local expertise and opinion on biotechnology and other science-related matters. It is therefore imperative that OFAB target local scientists, technocrats and biotechnology experts and help them understand, appreciate, internalise and promote positions of national and regional institutions like the AU and SADEC on biotechnology and science and technology in general.

- *Adverse positions taken by some policy makers:* Some political bigwigs and government executive gate-keepers have taken positions that are against the government position to support and promote the technology. They are indeed making it very difficult to have the country fast track the commercialisation of the technology in Zimbabwe.
- *Low understanding of international treaties and protocols on biotechnology:* There is need to train the journalists and other stakeholders to understand the implications, opportunities and challenges these protocols have on commercialisation of biotechnology. This may also entail regular updates on international decisions and trends in biotechnology.
- *Impartiality of journalists and media ethics:* There is clear need for journalists to adhere to journalist ethics when reporting on biotechnology. This is science and there is no room for sensational reporting, being bribed to either report positively or negatively.
- *History of bioterrorism:* Zimbabwe has had a long history with biotechnology, all the way from the 1960's when the colonial government used bioterrorism, anthrax in particular, during the independence war with freedom fighters. Unfortunately most journalists reporting on biotechnology are shying away from history, and not understanding why some government officials are for the technology while others are very much against it. Those opposed to the technology are mainly those who were involved in the independence struggles, who still remember their nasty experiences with bioterrorism and relate it to biotechnology. However, the new crop of leaders with no such memories is very receptive to the technology. Indeed, Zimbabwe is among the first countries in Africa to conduct biotech research. The country has a fully established and functional National Biotechnology Authority.

### **Opportunities**

- *Positive information from leading institutions:* There are institutions such as OFAB and NBA that are shaping peoples mind sets on biotechnology. The positive attitude of members of the Parliamentary Committee on Agriculture towards biotechnology can be attributed to the awareness, sensitisation and educational efforts of these organisations. These organisations should widen their target audiences to other key policy and decision makers.
- *Farmer involvement:* Biotechnology development targets farmers and they should therefore be involved. Farmers are indeed intelligent and their decision to accept or reject the technology and its products will depend on how they see it improving their farm productivity and profits. Considering that Zimbabwe has not commercialised any biotech crops, it is very imperative that farmers get the chance to see and share experiences with their counterparts in countries that have already adapted the technology. For instance, a recent exposure visit, organised by the NBA for farmers to Malawi and South Africa, has helped farmers to embrace *Bt* cotton and biotechnology in general.

- *The science weeks and exhibitions:* Universities and other research organisations usually hold weeklong exhibitions of their research works and innovations, which in most cases is not in the public domain. It is a great opportunity to pick out wonderful story leads, develop contacts, and network with organisers. It is surprising that in most cases, these great innovations and breakthrough are first reported by the international media – Reuters, BBC and the likes.

## How to improve biotech reporting

- *Help journalist associations:* Support national journalist associations to be functional and be able to facilitate members to undertake assignments and factually report on biotechnology without having to rely on handouts that might compromise their impartiality.
- *Direct support for journalists:* It might also be prudent to consider providing direct grants to journalists to undertake assignments that would otherwise not be supported by their media houses or editors. This is very important especially where editors have difficulty understanding the subject or issue that the journalist wants to pursue or investigate.
- *Field trips:* Whenever possible organise field trips for journalists, for other than being a great source of story ideas, they also help them understand and appreciate the technology.
- *Training:* Mentoring young and upcoming journalists will go a long way in helping them to not only sharpen their reporting skills but to also have a deeper understanding of the issues in biotechnology.

## Nigeria

### Challenges

- *Poor or no remuneration for journalists:* A good number of journalists in Nigeria are freelancers who are hardly paid. For staffers, there is no guarantee that their salaries will be paid on time, sometimes taking as long as six months before they are paid. This exposes the journalists to monetary inducements, which compromise their impartiality and factuality in reporting on biotechnology.
- *Low knowledge of biotech among journalists:* This is partly to blame for the ‘eventorial’ articles and the general lack of in-depth reports on biotechnology. Eventorial journalism is also perpetuated in part by the failure of media houses to facilitate journalists to undertake research on an issue.
- *Anti-biotech groups have infiltrated media establishments:* A number of journalists are working with these anti-GM activists to report negatively on biotechnology. Editors working with anti-GM activists kill factual stories.

### Opportunities

- *Journalist associations:* Engage with journalist associations such African Journalists Network For Agriculture (AJNA) and Nigeria Union of Journalists (NUJ) to promote reporting of biotech in the country. The associations, particularly AJNA, can mobilise members to attend biotech AATF/OFAB events and functions, identify areas of collaboration and the support that might be needed.

- *On-going biotech research:* Biofortified GM cassava with increased level of beta-carotene, Vitamin A; Bt cowpea for resistance against *Maruca* pest; and biofortified sorghum trials offer good story leads.

## How to improve biotech reporting

- *Create a database of willing experts for interviews:* AATF/OFAB needs to set up a database of willing scientists or experts for interviews. This database should be shared with journalists and/or AJNA. This will assist journalists who are not able to go to the field to either make calls or send their questions to the scientists via email. Many journalists are more interested in reporting politics and other 'lucrative' beats as the sources are more willing to be interviewed and greatly appreciate that they are being given coverage.
- *Training:* AATF/OFAB should expand trainings to increase the number of journalists reporting biotech. There is also need to train editors on biotech and its role in development for them to appropriately support and guide their reporters, and more importantly, remove any biases that they might have been harbouring about biotechnology. This should be complimented with facilitation to attend international conferences for opportunities to talk to scientists and share experiences with fellow journalists.
- *Facilitate scientist availability:* AATF/OFAB should discuss with scientists on the need for accessibility, and promptness in responding to enquiries from journalists: Scientists 'fear-attitude' to journalists is a challenge that could be overcome by trust and access.

## Ghana

### Challenges

- *Technical subject:* The lack of knowledge and understanding of biotechnology is a big challenge that makes many journalists prefer the less technical subjects like politics, entertainment and sports. Many end up with very inaccurate articles. Others opt for the sensational aspects, mainly perpetuated by the anti-biotech activists. Unfortunately, sensationalising biotech and science in general kills the trust science journalists have cultivated with scientists.
- *Lack of respect for editors/fellow journalists:* Some journalist feel they are more knowledgeable on the subject than the editor or fellow journalists. The consequences are that the editors are more likely to retaliate by killing any story from journalists who undermine them. Editors should also be trained on biotechnology, to make them more knowledgeable and confident in discussing the subject with reporters, and more importantly, be in a position to determine the accuracy of the article.
- *Anti-GM activism and reporting:* Like in other parts of Africa, there is very strong ant-GM activism in Ghana targeting not only the farmers, consumers and policy makers, but journalists also. The unfortunate part is that they are very good at marketing their propaganda, using language and graphics that easily capture people's imagination. The result is a flood of sensational articles on GM products, negatively shaping people's attitudes towards biotechnology. One of the marketing strategies is to bribe gullible journalists to write and publish these sensational articles.
- *Poor pay:* Experienced science journalists are leaving for more lucrative jobs (as communications persons with NGOs and other development agencies).

## Opportunities

- *GM research:* That Ghana has started conducting CFTs on *Bt* cotton for resistance against bollworms, nitrogen/ water use efficiency (NUWEST) rice, and *Bt* cowpea for resistance against *Maruca* pest should fire up journalists to report on biotechnology.
- *Interested scientists:* Scientists involved in the GM research are very open to media interactions and coverage making life easy for science journalists who seek interviews, information or clarifications.
- *Government supports biotechnology:* Ghana has put in place policies and regulatory frameworks, such as the Biosafety law, to support the responsible and safe use of biotechnology. In addition, the government is also working on the Plant Breeders Law. The on-going research, the formulated and the formulation process offer story ideas and, consequently, opportunities for reporting on biotechnology.

## Ethiopia

### Challenges

- *Unknown subject:* Modern biotechnology is a relatively new subject that is less understood by many Ethiopians, a subject only discussed in the academia, and at the policy level. Except for the multi-locational *Bt* cotton trials, there is little field research on GMOs in Ethiopia. The country only has an interim National Biosafety Framework. With limited research activities, many Ethiopians are not aware of biotechnology. It is a foreign ideology. The bio-safety proclamation, which was ratified in 2009, had strict provisions on dealing with GMOs<sup>6</sup> which virtually prohibited research and development of GMOs in Ethiopia. The proclamation was finally amended in August 2014 to allow for research and development of GMOs.
- *Negative perceptions about modern biotechnology:* Much of what is in the public domain is the debate in Europe and elsewhere in Africa dominated by anti-GM activism which has unfortunately been responsible for much of the negative public and even scientific attitude towards biotechnology. Both the general public and even some scientists have negative perceptions about modern biotechnology, many believing that it is harmful to the environment and products are health risks.
- *Little or no media training on biotechnology:* There has been little effort in training Ethiopian journalists on modern biotechnology. As such, understanding of the technology is very low. Lack of GM trials in the country has also stifled interest among journalists interested in reporting on the technology.
- *Controlled state media<sup>7</sup>:* There is heavy state control of the media. Media reports are inclined to toe or champion the agenda of the state. Unlike in other countries where the media is free to question and criticise state decisions, journalists and media houses face dire consequences for not toeing the government position.

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6 <http://addisfortune.net/articles/biosafety-bill-to-open-door-to-gmos-in-ethiopia/>

7 [http://en.wikipedia.org/wiki/Media\\_in\\_Ethiopia](http://en.wikipedia.org/wiki/Media_in_Ethiopia)

### Opportunities

- *Government support for modern biotechnology:* The government has taken measures that appear to facilitate the adoption of biotechnology – allow research, development and commercialisation of GM products. Parliament approved the Biosafety Proclamation amendment<sup>8</sup>, which now lessens the restriction on the contentious issue of importation of GMOs. This support is likely to lead to research institutions in the country, like the Ethiopian Institute of Agricultural Research (EIAR), and the Ethiopian Academy of Sciences to initiate research on GM crops. EIAR is already conducting multi-location trials of *Bt* cotton. This will create opportunities for journalists to report on biotechnology – on the research, the researchers, the crops being developed, on the social and economic aspects of GM crops among other interesting issues with modern biotechnology. It is worth noting that there is a large number of eminent Ethiopian scientists in the diaspora involved in biotech research.
- Both public and private media houses have agricultural programs that reporters can exploit to publish their biotech articles.

### How to improve biotech reporting

- *Media training on biotechnology:* There is need to train journalists (both reporters and editors) on biotech and its role in development. As many journalists as possible should be invited to events such as workshops on biotechnology for sensitisation and awareness creation.
- *Promotion of science reporting among private media houses:* Many are very much into entertainment but effort should be made to have them air science and development programs such as those on biotechnology.
- *Capacity building:* Revive and build capacity for science journalists' associations in Ethiopia.
- *Field visit and biotech workshops:* OFAB Ethiopian chapter can assist in the much needed training of journalists on biotechnology by facilitating field visits and linking or facilitating journalists to participate in biotech workshops, seminars and other events.
- *Links to science centres:* Create linkages for journalists with the numerous CGIAR centers dealing with GM research.

### Conclusions and recommendations

Africa needs to adopt modern agricultural biotechnology to transform agriculture into a force of economic growth and consequently overcome the challenge of feeding the high and rising population expected to reach 1.2 billion by 2050. However, Africa is

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8 The amendment states that any person can engage in transactions destined for the release of GMOs to the environment by obtaining an Advanced Informed Agreement from the MoFEP. Any applicant can engage in any contained use transaction with a special permit from the Ministry. This bill, which was submitted to Parliament's Forest and Natural Resource Standing Committee at the end of July 2014, was drafted by the Ministry of Forest & Environmental Protection (MoFEP), Ministry of Agriculture (MoA), Ethiopian Institute of Agricultural Research (EIAR) and the Ministry of Science & Technology.

lagging behind in adoption of modern biotechnology. The rate of adoption of biotech crops in Africa is not in tandem with other developing countries. All efforts should be directed to ensuring that the continent does not miss out on modern biotechnology as was the case with the Asian Green Revolution in the 1960s through to 1980s that was based on agricultural technological breakthroughs that developed high yielding varieties of rice and wheat and saved billions of people from hunger.

The media has a critical role to play in the ultimate acceptance or rejection of modern biotechnology. It is the consumers' primary and preferred source of information on science and technology. How the media portrays science in general and biotechnology in particular can have an adverse impact on how the public understands the topic and how policy makers craft policies. A high level of public awareness, coupled with access to fair, objective, and scientifically accurate reporting and information, is more likely to stimulate entrepreneurial activity, and more likely to lead to fair and positive outcomes where there are controversies.

However, it has been established that biotechnology is under-reported in the popular African media. Biotechnology topics do not have a high media profile, especially compared to reporting on politics, economics, arts and sports. Of greater concern is the fact that while it is now widely acknowledged that the adoption of modern biotechnology can be hampered by inaccurate, unreliable information, and lack of knowledge and awareness at all levels of society, this is the unfortunate scenario in Africa, a situation that has brought about fear, concerns and myths about the technology.

One of the key reasons why biotechnology has not received its fair share of reporting is the very low level of understanding of biotechnology among journalists in Africa. The exceptions are the few science journalists who have been trained on biotechnology and who are indeed authoritatively reporting on subject. This comes at a time when journalists across newsrooms acknowledge the fact that there are now more opportunities for reporting on biotechnology: several media houses have gone ahead and created science and agricultural magazines and programs that provide wider opportunities for reporting on biotechnology. There is also vibrant on-going research on biotechnology, which together with the scientists involved provide useful leads and story lines for journalists. There is therefore need to expand the training to as many journalists as possible including editors so as to create a critical mass of journalists to report on biotechnology.

These journalists' experiences are very important in understanding the factors behind the low coverage of biotechnology, and will be critical in devising strategies that expand the coverage and scope of biotechnology coverage in the African media. Organisations involved in promoting biotechnology through media coverage can draw on these lessons learnt and experiences to develop effective strategies and interventions.

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## African Agricultural Technology Foundation

P O Box 30709 - 00100, Nairobi, Kenya

Tel: +254 - (0) 20-4223700

Email: [aatf@aatf-africa.org](mailto:aatf@aatf-africa.org)

Website: [www.aatf-africa.org](http://www.aatf-africa.org)

