

SAFE TO EAT OR UNSAFE? MEDIA COVERAGE AND EXPERT VIEWS ON GENETICALLY MODIFIED FOODS ACROSS SELECT TELEVISION CHANNELS IN NIGERIA

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Abstract

The introduction of genetically modified foods (GMFs) as a means of addressing the growing food security challenge in Nigeria has thrown up quite a number of mixed narratives and divergent views among various stakeholders and interest groups, and this subject has also attracted the attention of the media. This study therefore investigated media coverage and expert views on Genetically Modified Foods across select television channels in Nigeria. The study was anchored on the media framing theory. Through the use of content analysis and in-depth interview, the study examined 36 interview and discussion programmes across three television channels namely Channels Television, Arise TV and NTA between January 2021 and December 2025, while nine participants comprising of experts were interviewed. The Data was analysed by way of qualitative analysis using the Nvivo 15 application. Findings from the study revealed a highly lopsided landscape, skewed toward positive public discourse about genetically modified foods, with experts positing that GMFs have potentials for improving agricultural productivity, reduce crop losses and contribute to solving Nigeria's food insecurity challenges. The study concluded that media framing plays a significant role in shaping public understanding and perception of GMFs in Nigeria. The study recommended that: governments in Nigeria and biotechnology agencies should intensify public education and awareness campaigns to provide accurate information about GMFs to reduce misinformation while media organisations should also promote balanced and evidence-based reporting.

Keywords: Genetically modified foods, media framing, food security, biotechnology, tone of narratives, Nigeria.

Introduction

Food insecurity is one of the major socioeconomic problems in Nigeria, affecting millions of citizens. Nigeria faces a paradoxical struggle with pervasive hunger and food insecurity (Kasuwa, 2024). The introduction of genetically modified foods, therefore, seems to be one of the measures adopted in Nigeria to address food insecurity due to its potential to increase crop yield, enhance pest resistance, and reduce dependence on chemical inputs (FAO, 2022).

The integration of genetically modified (GM) crops into agricultural methods has attracted worldwide interest, with the resultant effects being especially evident in the varied and agricultural landscapes of Africa (Akinbo *et. al.*, 2021; Gbadegesin *et. al.*, 2022; Mmbando, 2023). Genetically modified (GMF) foods present both opportunities and threats, as countries grapple with the pressing necessity to protect food security and enhance agricultural resilience (Bjornlund *et. al.*, 2022; Jayne *et. al.*, 2021). Even though biotechnology has remained in active public discussion and debate since the first commercialisation of GM plants in the mid-1990s, consumer/audience knowledge about GMOs has not increased at the same rate as the adoption of GM foods (Wunderlich & Gatto 2015). Advocates of the initiative like Gbarada (2021), see economic prospects in advocating for the adoption of genetically modified (GM) crops, which may lead to an increase in both revenue and agricultural production. These conflicting viewpoints demonstrate that the GMF discourse transcends a mere scientific inquiry. It encompasses economic interests, health-related factors, ecological issues, cultural values, national autonomy, institutional capability, and confidence in regulatory frameworks (Gbashi *et. al.*, 2021). The need to examine how the media frames GMFs whether positively or negatively significantly influences public perception and policy discourse.

Statement of the Problem

The discussion around genetically modified (GM) foods is a contentious one in Nigeria, as it is in many other countries globally (Trommsdorff et. al, 2021; Scherer *et. al*, 2020). For example, a study by Akinwale *et al.* (2024), revealed that over 60% of Nigerians are either unaware of GM foods or hold misconceptions about their safety. Certain experts believe and argue that GM foods are not only hazardous to human health but also not environmentally viable due to potential disruptions to existing farming methods.

Common concerns include health risks such as toxicity and allergenicity, environmental harm, and ethical fears about “tampering with nature.” Misinformation campaigns and weak science communication infrastructures further complicate public understanding, leading to low trust in government and biotech regulations (Lynas, Adams, & Conrow, 2025). Based on the above, the need for accurate information on genetically modified foods draw attention to the role of the media in shaping public perception. This is because both the advocates and opponents of the commercial production of genetically modified foods in Nigeria are using the media in propagating their ideologies.

However, there is a noticeable lack of research on how Nigerian media outlets construct narratives around GM foods. Preliminary observations suggest that media coverage may be sporadic, polarized, or based on limited scientific evidence, which can lead to misinformation or public mistrust. Some researchers like Gakpo (2025), even contend that media coverage of GMOs in African countries like Uganda, Nigeria, Kenya, and Ghana, inspired mainly by the negative narrative of anti-GM groups, has encouraged the populace to fear GMOs. Without consistent and balanced framing, the media may hinder informed decision-making among the public and policymakers. This problem underscores the need for a critical analysis of media framing practices related to GM foods in Nigeria to better

understand their impact on public awareness, acceptance, and agricultural policy. This is because it is believed that public perceptions may be either negative or positive, depending upon the specific elements that influence them at different times. It is therefore on this basis that this study seeks to investigate media framing of genetically modified foods in select online television channels.

Research Questions

1. What are the patterns of coverage used in reportage genetically modified foods among selected television channels in Nigeria?
2. What is the dominant tone of narratives used in the coverage of genetically modified foods in the YouTube platforms of select television channels in Nigeria?
3. What are the policy interventions canvassed by experts on genetically modified foods in Nigeria?

Review of Related Literature

Genetically Modified Foods in Nigeria

According to a channels television report of 2024, genetically modified organisms (GMOs) were first introduced into Nigeria in 2001, with the endorsement of the National Biotechnology Policy by the Federal Executive Council on April 23, 2001. This policy recognised the significance of biotechnology in economic development for the nation (Channels TV, 2024). In November 2001, the National Biotechnology Development Agency (NABDA) was established. The organisation was established with the purpose of implementing the plan to effectively promote, coordinate, and prioritise research and development, particularly in the field of biotechnology, for Nigeria (OyozeBaje, 2022). In 2004, Nigeria and the United States governments entered into a Memorandum of Understanding (MOU) to provide assistance for genetically modified (GM) crops. Nevertheless, similar to several other nations, Nigeria has seen intense and contentious discussions on the implementation of GMF (Channels TV,

2024). In July 2018, Nigeria made significant progress in adopting biotech crops by granting approval for its first commercially accessible GMO crops. This allowed farmers to get genetically modified soybean seeds specifically bred to exhibit resistance to local pests. The pest-resistant genetically modified *Bacillus thuringiensis* (Bt) cotton is regulated by the National Varietal Release Committee, the highest regulatory body (Isaac & Conrow, 2019). In 2019, Nigeria achieved significant advancements in agricultural biotechnology by granting approval to two genetically modified (GM) crops: cowpea (specifically, pod-borer resistant cowpea known as SAMPEA 20-T) and pest-resistant Bt cotton (Boluwade and Uche, 2021). Several other African nations are now undertaking field trials of Bt crops, after an extensive decade-long investigation by its experts.

According to Jawo *et. al.*, (2020), Nigeria as a nation has been slow in adopting GM crops due to the political debate and public opinion that have been tailored by fear of the unknown which is exacerbated by the social media. The discussions revolved around the potential of the GMF to introduce additional hazards to food security, natural environment, and public health, including environmental pollution and biodiversity threats (Kuzma and Haase, 2012). Nevertheless, those who possess knowledge about GM crops strongly advocate for the technique. Given its recent introduction in Nigeria, this technology has naturally generated concerns over public health and safety. Generatively modified crops have also raised widespread apprehension about their impact on health and the environment. This includes concerns about pesticide resistance, the implications of these crops for farmers, and their role in global food production (Newswire, 2013).

According to the international service for the acquisition of agri-biotech applications, about 33 major food crops have been genetically modified worldwide. Four of these, that is maize, cowpea or beans, cotton and soya bean have been officially approved for commercial production by the authorities in Nigeria, making Nigeria one of the six leading countries in

biotech crop adoption in Africa. Today, more than 30 different food items being sold in the market are genetically modified, ranging from tomatoes, apples, bananas, pepper, cocoyam and so on. In January 2024, the Nigerian government approved the open cultivation and commercial release of Tela maize in the country (Ajibade, 2025).

Media Framing of Genetically Modified Foods

A significant number of consumers have suggested that their initial awareness of GMO foods originated from various media outlets, the Internet, and other informational sources. Regrettably, these sources of information may not consistently align with the prevailing scientific evidence in terms of reliability. Since people depend on the media for clarifications and suggestions, the media, through frames often influence public perception and reception of issues and events - culture, gender, race, policy, etc. (Ezeah & Abodurin, 2016). In mass-media communication, for example, a frame is how information is packaged to encourage one way of interpretation or discourage another (van der pas, 2014). Effective framing can influence the interpretations of life events and the public opinion and perception of a topic, especially when framing is tied to a person's identity such as national origin or socioeconomic status (goffman, 1974: velardi & salifa, 2021). The media's coverage of the application of genetically modified organism (GMO) technology in food production significantly influences consumer perceptions, attitudes, and behaviors toward it (McCluskey, 2016). Some researchers like Gakpo (2025), contend that media coverage of GMOs in African countries like Uganda, Nigeria, Kenya, and Ghana, inspired mainly by the negative narrative of anti-GM groups, has encouraged the populace to fear GMOs. It is therefore the prime duty of the media to always keep an open mind in order to be able to guide society into making informed decisions. This is because the public's perception of genetically modified (GM) crops in Africa is marked by a wide array of ideas and attitudes, influenced by numerous cultural settings and socio-economic factors (Kiaga, & Leung,

2020).

In both the United States and Europe, groups opposing genetically modified organisms have constructed a narrative around “GMOs” through persistent fear tactics that lack empirical support, logical frameworks, or rational discourse, instead relying on evocative imagery of “Frankenfood” to instill apprehension in consumers (Clancy, 2016). A thorough examination of the media has been conducted, indicating that, notwithstanding the prevalent alarmism, there is a discernible positive trend regarding GM crops in both traditional and social media platforms (Evanega, 2022). Nevertheless, the prevalence of misinformation surrounding genetically modified crops continues to be a significant issue, as evidenced by a recent comprehensive analysis of extensive data concerning media misinformation (Lynas et al., 2023). Thus, the manner in which the media presents these issues is essential for enhancing public comprehension of the intricate dynamics involved.

Theoretical Framework

Framing Theory

Developed by Erving Goffman in 1974, the theory suggests that media do not merely report, but they actively participate in the process of creating social meaning by selectively highlighting and de-emphasizing specific elements of a news story and downplaying or even ignoring other elements (Entman, 1993). This view holds that media frames influence the manner in which viewers perceive policy matters, hold the actors accountable and the solutions provided. Essentially, the Framing Theory places the media as a strong mediator between objective policy events, and how the masses perceive the same and concludes that the presentation, focus, and narrative profiles of the news might be as important as the factual content of these news items (Zaklama, 2025).

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How stories are framed is determined by news values. Although there are 12 news values (Galtung, 1965) Entman says five fundamental values are the most popular when framing stories: conflict, human interest, consequence, morality and responsibility (Kennedy, 2021). This understanding of framing theory is crucial in this study because it helped assess how media outlets in Nigeria, have presented GMF-related news stories, the language used, sources of information, and the overall narrative in the stories through the natural and social frameworks. These frames played a pivotal role in shaping citizens perception and interpretation of GMFs, influencing whether they perceived them as beneficial solutions to agricultural challenges or as risky and potentially harmful innovations. Consequently, Framing Theory provides a suitable lens for examining how Nigerian television commentators define, interpret, and present GMFs to audiences and how these presentations may influence public perceptions of biotechnology, food security, and agricultural development.

Methodology

The study adopted a mixed method research design by way of content analysis and in-depth expert interview. Content analysis was selected because it allows the systematic evaluation of diverse media contents, including written and audio-visual materials. Three television stations namely Channels, Arise TV and NTA were selected for this study. These

stations were selected based on their popularity as leading television stations in Nigeria and richness in terms of news coverage. To analyse the media content from the selected television stations, 36 interview and discussion YouTube videos on genetically modified foods were purposively selected from all the media reports available on the subject, which were retrieved from the YouTube channels of the aforementioned television stations between January 2021 and December 2025. Using a quantitative content analysis, the coding sheet research instrument was used to analyse the videos, while the method of data presentation and analysis was descriptive and textual analysis in essay form. The study also employed in-depth interview from experts such as agricultural scientists, biotechnologists, nutritionists, policy-makers, regulatory agency officials, and bioethicists to provide grounded, evidence-based perspectives on the development, regulation, and potential impacts of GM foods in Nigeria. The interview data were analysed thematically. Relevant responses were coded, grouped into related categories and subsequently developed into broader themes. In this study, nine participants were interviewed on framing of genetically modified foods by public commentators on YouTube channels of selected television stations in Nigeria.

Results and Discussion

Research Objective 1: Find out the pattern of coverage of genetically modified foods among selected television channels in Nigeria (N=36).

Pattern of Coverage	Channels	Arise	NTA	Total	(%)
Interview	6	2	6	14	38.8
Narrative	2	0	0	2	5.6
News Analysis	0	3	2	5	13.9
News Commentary	2	2	1	5	13.9
Discussion	2	2	4	8	22.2
Documentary	2	0	0	2	5.6
Total	14	09	13	36	100

Source: Field Survey, 2026

As illustrated for each television channel with their respective patterns of coverage, interviews has the highest pattern of coverage, with a percentage of 38.8%, followed by discussion programs with 22.2% while narratives and documentaries has the lowest pattern of coverage.

Research Question One: What is the dominant tone of narrative in discussions surrounding genetically modified foods in selected television stations in Nigeria?

Table 1: Tone of Narrative (Sentiment Analysis)

Code	Category	Frequency (N=36)	Percentage
H1	Positive	22	61.1
H2	Neutral	4	11.1
H3	Negative	5	13.9
H4	Alarmist	5	13.9
H5	Sensational	0	0
H6	Biased	0	0
	Total	36	100

The table above show the sentiment analysis, which reveals a highly lopsided landscape, skewed toward positive public discourse about GMO. Out of 36 frames, the Positive tone (H1) emerges as the absolute dominant sentiment, accounting for 61.1%. This heavy slant indicates that when framing titles and headings for YouTube webcasts and broadcast segments, the media actively adopts a progressive, developmental stance. For example President Nigerian Biotech and Biosafety Consortium said: *“We do not need to worry about the future of GMOs on Agricultural products as they are being propagated, they are mere conspiracy theories.”*

Also, Director General of the National Biotechnology development agency (NABDA) added that:

Science has improved, there is one bacteria known as bacillus trangenasis whose gene is a repellant to a particular insect, so you insert it into a crop to make it resistant to that insect... a lot of testing has been done to ensure that everything is safe, that is why GMOs take a longer time to be produced, as a result of

that, it will take a longer time for scrutiny to be done, and that is why we have lots of agencies that are taking each and every steps into cognizance to make sure those protocols and cautions have been observed.

This indicates that the overarching tone introduced by public commentators on these digital television platforms is favorable toward GMO foods. On the other hand, the Neutral tone (H2) accounts for only 11.1% (N= 4) of the discourse for example Former Minister of Environment opined that:

Nobody has said they are totally safe or totally unsafe, our job is to regulate and keep vision of what can be done, biotechnology itself is not that old so there is still room for us to keep watching... I will not give a blanket approval to GMOs, that is why we have our laboratories where we do test and we keep watching what may or may not happen.

Similarly, the table shows the same narrative regarding Negative Sentiment (H3) represented by 13.9% and Alarmist sentiment (H4) represented also by an identical 13.9% showcasing counter-narrative block, for instance, regarding negative tone (H3), Commissioning Editor, The Conversation Africa, said: “I don't support GMOs”,

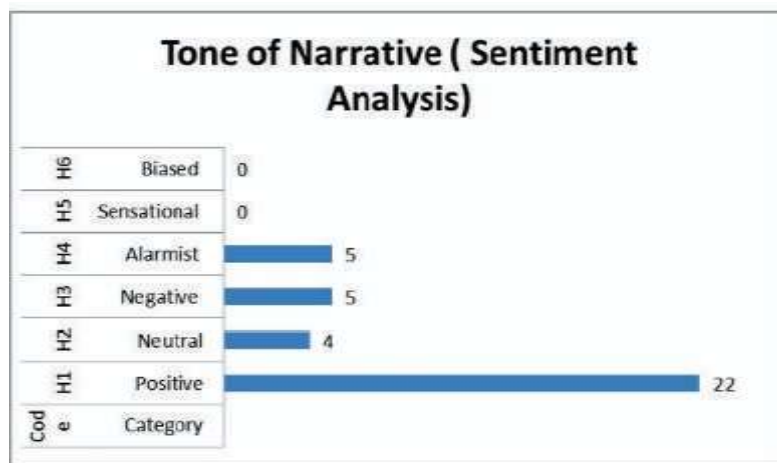


Table 2: Tone of Narrative

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Above is a matrix coding chart showing the tone of the narrative on GMO

The prevalence of a positive tone (61.1%) should be regarded with care and sensitivity. Although proponents lauded GMO technology, their assurance was often contingent. The NABDA Director's assertion that testing guarantees safety, stating "that is why GMOs take a longer time to be produced," tacitly concedes that safety concerns are sufficiently valid to need prolonged testing.

A significant point is that the stated negative (13.9%) may not accurately reflect the true extent of popular scepticism. The CEPSAR Director's statement on "residues of such compounds" and IARC classification raises a fundamentally distinct worry compared to mere "negative feeling. This implies that: oppositional perspectives may be inadequately reflected in mainstream television discourse, opposition expressed is fundamentally based on particular concerns and the risk communication method significantly contrasts with the implications of the "alarmist" label. The Absence of Sensational/Biased Frames is unexpected and needs to be discussed. The lack of sensationalism may suggest that Nigerian media adhere to a professional journalistic standard in GMO reporting.

Research Question Three: What are the policy interventions canvassed by experts on genetically modified foods in Nigeria?

Table 2: Summary of Policy Interventions by Experts

Theme	Participants Citing	Framing Tone
Adequate Sensitization and Awareness	4 (P5, P7, P8, P9)	Constructive / Prescriptive
Funding	3 (P4, P5, P7)	Constructive / Prescriptive
Cooperative Farming and Farm Insurance	2 (P5, P7)	Constructive / Prescriptive
Proper Nutrition	1 (P3)	Constructive / Prescriptive
Regulatory Frameworks	5 (P4, P5, P7, P8, P9)	Constructive / Prescriptive

Overall, experts canvassed a multi-pronged policy approach to GMO adoption in Nigeria, combining public sensitization, sustained government funding, cooperative and insurance-based structural support, a shift towards nutrition security, and most prominently, stronger and more capable regulatory frameworks. Together, these themes suggest that expert confidence in GMO adoption is closely tied to the strength of Nigeria's institutional and regulatory capacity to manage the technology responsibly.

Discussion of Findings

The first objective was to find out the patterns of coverage used in reportage genetically modified foods among selected television channels in Nigeria. According to data that was gotten from the coding, interviews had the highest pattern of coverage. By definition, interviews are programmes that involve an asking and questioning session between the programme host and the guest will be classified as an interview programme. The interview session could be in the broadcast studio or via any online conference calls between the interviewer (host) and the interviewee (guest). While this in itself is not bad as it shows the media performing its information function to

the society, the relatively small sample size over a five year period across major television channels in Nigeria suggests a possible lack of media attention on the subject matter. This is in line with the findings of Omeje (2019), who affirmed that the quality of media coverage of GM crops was very poor because of the poor state of science journalism in Nigeria. According to his study, journalists lacked the capacity and resources to cover science accurately, especially controversial science like genetically modified foods.

With regards to dominant tone of narratives, findings from the content analysis reveal a highly lopsided landscape, skewed toward positive public discourse about genetically modified foods. Out of 36 frames, the Positive tone (H1) emerged as the absolute dominant sentiment, accounting for 61.1%. The predominance of positive discourse surrounding genetically modified foods reflects the central proposition of **Framing Theory**, which holds that media actors influence audience perceptions by emphasizing particular attributes of an issue while minimizing alternative perspectives. The favourable portrayal of GMFs suggests that commentators framed the technology primarily in terms of its benefits, thereby shaping public interpretation in a positive direction.

The findings of this study also nullifies the position of some researchers like Gakpo (2025), who contend that media coverage of GMOs in African countries like Uganda, Nigeria, Kenya, and Ghana was inspired mainly by the negative narrative of anti-GM groups, has encouraged the populace to fear GMOs. Also, in both the United States and Europe, groups opposing genetically modified organisms have constructed a narrative around “GMOs” through persistent fear tactics that lack empirical support, logical frameworks, or rational discourse, instead relying on evocative imagery of “Frankenfood” to instill apprehension in consumers (Clancy, 2016). The negative narrative also explains why Sadikiel (2024), examined

the current situation surrounding the use of GM crops in Africa, focusing on moral conundrums, regulatory frameworks, and public opinion. Only 11 of the 54 African countries currently cultivate GM crops due to the wide range of opinions resulting from the disparities in cultural, socioeconomic, and environmental factors. The present findings therefore reinforce the argument that biotechnology discourse in many African countries is often framed through a developmental lens, positioning GMFs as potential solutions to food production challenges. However, unlike some studies that reinforce negative narratives, or placing more emphases on risk frames, the findings of the study reveals a more pronounced emphasis on positive narratives, suggesting a stronger developmental orientation in Nigerian television discourse.

With regards to policy interventions canvassed by experts on genetically modified foods in Nigeria. Findings from the content analysis and in-depth interview carried out identified some policy interventions identified include adequate sensitisation, adoption of cooperative farming, farm insurance, funding, institutional support (like IITA etc), proper nutrition and regulatory frameworks. The policy intervention findings from the qualitative data function as an implicit diagnosis of the four preceding theme sets: experts overwhelmingly prescribe sensitization/awareness (media jingles, saturated coverage, prime-time programming) and regulatory strengthening (questioning whether NABDA/NBMA has sufficient technological capacity) as the two most cited remedies.

The study findings correspond well with **Framing Theory**, since the identified policy initiatives illustrate the many methods by which professionals articulate and define solutions to the GMF problem in Nigeria. The policy interventions identified by experts such as adequate sensitisation, cooperative farming, farm insurance, funding, institutional support, proper nutrition, and regulatory frameworks illustrate the diverse approaches experts propose to address the challenges and opportunities related to

genetically modified foods (GMFs). For instance: Proper sensitisation positions genetically modified foods as a matter of public awareness and understanding. Regulatory frameworks categorise genetically modified foods as issues of governance and safety. Financial resources and institutional backing position genetically modified crops as an agricultural development matter for governmental action.

The conclusion that experts recommended sufficient sensitisation as a crucial policy action highlights the importance of public communication in biotechnology governance. This discovery corroborates the assertion of Raza, Zaman, Ferreira, and Farías (2021), who argue that public acceptance of developing technology is significantly shaped by the quality, framing, and accessibility of information provided to individuals. Likewise, Gbashi et al. (2021), noted that disinformation and insufficient understanding continue to pose substantial obstacles to the adoption of biotechnology across Africa. Experts' recommendations recognise that public comprehension of GMFs is influenced not just by scientific facts but also by communication processes and media narratives.

Conclusion

The study concludes that television narratives on genetically modified foods in Nigeria were predominantly positive, with positive narratives accounting for 61.1% of the analysed content. This indicates that some television stations mostly portrayed GMFs through a lens of development and technological advancement, highlighting their prospective advantages for agricultural output and food safety. The existence of negative and alarmist storylines, which together made up 27.8% of the discussion, suggests that apprehensions about the safety and potential consequences of GMFs continue to be pertinent in public discourse. The results indicate that Nigerian television significantly influences the formation and development of public perceptions of GMFs by selectively highlighting specific viewpoints. The prevalence of affirmative narratives may enhance the

adoption of biotechnology, although a balanced portrayal of differing expert viewpoints is crucial for informed public dialogue and decision-making.

Recommendations

1. Television stations should increase the frequency and diversity of coverage of GMFs, particularly through documentaries and analytical programmes.
2. Television stations should ensure balanced reporting by giving adequate space to both supportive and critical expert perspectives on GMFs.
3. Government and relevant biotechnology agencies should strengthen public sensitization and regulatory frameworks to promote informed understanding and adoption of GMFs.

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