

FARMERS' PARTICIPATION IN THE CO-CREATION OF SUSTAINABLE FOOD SYSTEM CONTENT BY COMMUNITY RADIOS IN MIGORI COUNTY – KENYA

Awuor Olga Millicent¹,

Otieno Millicent A.²,

Akongo Marren³

Department of Communication, Media and Journalism Studies,

Rongo University,

Migori County,

Kenya

ABSTRACT

Sustainable Food Systems (SFS) require decentralised, localised, and participatory communication frameworks to ensure grassroots adoption, resilience, and equitable climate agricultural value chain integration. Community Radio (CR) has long been heralded as an egalitarian medium capable of bridging the knowledge gap between technical agricultural research, state policy, and rural smallholder realities. However, operational structural constraints often force CR stations into top-down, instructional lecture models. This empirical study which was anchored on Democratic-Participant Media Theory, Dialogue Theory, and Critical Pedagogy theory evaluates smallholder farmers' participation in the co-creation of SFS radio programming across Nyatike and Suna East Sub-Counties within Migori County, Kenya. Utilising a mixed-methods design, the study juxtaposes quantitative survey metrics against qualitative testimonies from Key Informant Interviews (KIIs), Focus Group Discussions (FGDs), and station broadcast log tracking. The findings reveal a severe structural participation funnel: while general listenership baseline reaches 78.9% (n=315), 54.6% (n=218) experience a total exposure deficit regarding downstream SFS concepts, 75.2% (n=300) maintain zero production engagement, and a mere 7.5% (n=30) function as active co-creators. High airtime tariffs, commercial funding dependency, institutional biases favouring traditional extension barazas, and strict broadcaster-centric production models perpetuate a state of "false participation."

Keywords: Sustainable Food Systems (SFS), Community Radio, Commercial funding, technical agriculture research, exposure deficit

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Introduction

The transformation of sub-Saharan agricultural landscapes hinges on the operational transition toward Sustainable Food Systems (SFS). An SFS is a holistic food system that delivers food security and nutrition for all in such a way that the economic, social, and environmental bases to generate food security and nutrition for future generations are not compromised. Moving beyond traditional production-centric agronomic paradigms (seed-to-harvest), SFS encompasses the complete, integrated value chain: primary production, downstream post-harvest processing, logistics and distribution, eco-friendly storage, and circular organic waste management.

Communicating these multi-layered, climate-resilient practices to rural populations requires more than static technology transfer that is, it demands *co-creation*. Within communication for development (C4D), *co-creation* is defined as the collaborative, non-hierarchical process where media producers, technical experts, local extension officers, and community members jointly identify information needs, conceptualise broadcast themes, design scripts, record authentic field experiences, and iteratively refine media content.

Sustainable Food Systems Radio Programs (SFSRP) refer to hyper-local, vernacular broadcast content delivered via CR a platform structurally mandated to be owned, operated, and driven by and for the community it serves. *Farmers'*

Participation measures the degree to which smallholder farmers transition from passive receivers of broadcast signals to active agenda-setters, content sources, studio interlocutors, and collaborative programmers.

Despite heavy investments in rural telecommunication networks and the proliferation of local-language radio stations across rural Kenya, smallholder farmers remain structurally isolated from the design and execution of agricultural radio programming. In Migori County, agricultural extension messaging continues to be dominated by top-down, expert-driven lecture models that prioritize immediate crop yield and market prices while ignoring systemic SFS concepts such as circular food waste utilization, soil bio-conservation, post-harvest losses, and climate adaptation strategies.

While smallholders possess rich experiential, indigenous knowledge, CR stations frequently reduce them to passive listeners due to prohibitive airtime costs, reliance on external donor funding that dictates commercialized production agendas, and a lack of technical capacity among broadcasters. Consequently, a profound disconnect persists between the high prevalence of general radio listenership and the negligible rate of actual audience co-creation. Without a systematic understanding of the structural, policy, cultural, and economic barriers preventing participatory program design, CR will continue to replicate legacy

monologue models, thereby failing to build resilient, community-led food systems.

To address this empirical gap, this study analyzed four interconnected objectives within Nyatike and Suna East Sub-Counties, Migori County. To begin with, it was aimed at establishing the baseline scope and listenership prevalence of smallholder farmers engaging with SFS community radio content. Secondly, it evaluated the structural participation funnel, mapping the transition from passive listenership to active program co-creation. Thirdly, the paper carried out a critical examination of the impact of media ownership, content policy, cultural norms, and literacy levels on farmer participation across five SFS value-chain stages (Production, Processing, Distribution, Storage, Waste Management). Lastly, it provided a synthesis of the qualitative and quantitative empirical dynamics to formulate a participatory communication framework for SFS radio co-creation.

Theoretical and Conceptual Framework

The paper is anchored on three complementary theoretical perspectives namely: the Democratic Participant Media Theory (McQuail, 1987), Paulo Freire's Dialogue Theory and Critical Pedagogy theory (Freire, 1970)

Table 1
Summary of Theoretical Framework Constructs

Component / Theory	Core Theoretical Principles
Democratic-Participant Media Theory (McQuail, 1987)	• Grassroots access and control • Horizontal communication structures
Dialogue Theory (Freire, 1970)	• Rejection of the "banking concept" of education • Problem-posing horizontal dialogue
Agricultural Innovation Systems (AIS) Framework	• Multi-actor network interaction (Farmers, Broadcasters, SCAOs) • Joint knowledge co-production across SFS value chains

Democratic-Participant Media Theory and Dialogue Theory inform the overarching interaction processes within the Agricultural Innovation Systems (AIS) Framework.

Democratic-Participant Media Theory rejects top-down, commercialized, and state-dominated media structures, asserting that citizens and local communities have a fundamental right to media access, production, and localized control. It posits that communication must be horizontal, small-scale, interactive, and embedded in local culture, providing the structural rationale for farmer-led radio co-creation. Paulo Freire's Dialogue Theory and Critical Pedagogy critiques the vertical "banking concept" of education, where experts deposit static knowledge into

passive recipients. Freire advocates for horizontal, problem-posing dialogue where educators and learners become co-creators of critical consciousness. Applied to SFS radio, farmers cease to be "empty vessels" for extension instructions and become co-analysts of their local socio-ecological challenges. Paulo Freire's Dialogue Theory and Critical Pedagogy: Conceptualizes agricultural development not as a linear transfer of technology from lab to land, but as an interactive network of diverse actors, farmers, extension agents, researchers, media organizations, and policy-makers, who jointly produce, adapt, and operationalize systemic innovations across the complete value chain.

Conceptual Framework

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Democratic-Participant Media Theory and Dialogue Theory inform the overarching interaction processes within the Agricultural Innovation Systems (AIS) Framework.

The conceptual framework illustrates how structural macro-environmental factors (ownership models, policy mandates, extension biases) and micro-level socioeconomic realities (airtime costs, literacy, cultural language affinity) interact through preferred communication presentation formats. These interactions dictate whether smallholders remain trapped in passive consumption or progress along the participation funnel toward meaningful, systemic co-creation across the five key nodes of the Sustainable Food Systems value chain.

Table 1 Conceptual Framework: Interaction of Macro and Micro Drivers on Smallholder Participation in Sustainable Food Systems (SFS) Structural & Contextual Antecedents Interaction & Mediation Behavioural Outcome (Participation Funnel) Macro-Environmental Factors

Ownership Models (Commercial vs. Public vs. Community)• Policy Mandates (Institutional guidelines & regulations)• Agricultural Extension Biases (Top-down vs. Participatory) Preferred Presentation Formats• Vernacular broadcasts & audio-visual media• Interactive radio programming• Call-in / SMS feedback systems• Peer-to-peer digital messaging Passive Consumption• Unidirectional reception of advice• Information compliance without feedback• Active Engagement• Dialogue and inquiry• Feedback contribution• Systemic Co-Creation• Joint problem-solving• Collaborative innovation across 5 SFS value chain nodes Micro-Level Socioeconomic Realities• Airtime & Device Access Costs• Functional & Digital Literacy Levels• Cultural & Language Affinities Note. Macro-environmental structures and micro-level socioeconomic realities interact via tailored communication presentation formats. This interaction governs smallholder progression along the participation funnel—from passive consumption to meaningful co-creation—across the five key nodes of the Sustainable Food Systems (SFS) value chain.

Table 2
Conceptual Framework: Interaction of Macro and Micro Drivers on Smallholder Participation in Sustainable Food Systems (SFS)

Structural & Contextual Antecedents	Interaction & Mediation	Behavioural Outcome (Participation Funnel)
Macro-Environmental Factors	Preferred Presentation Formats	Passive Consumption
• Ownership Models (Commercial vs. Public vs. Community) • Policy Mandates (Institutional guidelines & regulations) • Agricultural Extension Biases (Top-down vs. Participatory)	• Vernacular broadcasts & audio-visual media • Interactive radio programming • Call-in / SMS feedback systems • Peer-to-peer digital messaging	• Unidirectional reception of advice • Information compliance without feedback
		Active Engagement

Structural & Contextual Antecedents	Interaction & Mediation	Behavioural Outcome (Participation Funnel)
Micro-Level Socioeconomic Realities • Airtime & Device Access Costs • Functional & Digital Literacy Levels • Cultural & Language Affinities		• Dialogue and inquiry • Feedback contribution
		Systemic Co-Creation • Joint problem-solving • Collaborative innovation across 5 SFS value chain nodes

Macro-environmental structures and micro-level socioeconomic realities interact via tailored communication presentation formats. This interaction governs smallholder progression along the participation funnel—from passive consumption to active engagement and meaningful co-creation—across the five key nodes of the Sustainable Food Systems (SFS) value chain.

Research Methodology

This study deployed a convergent parallel mixed-methods research design, integrating quantitative survey data with qualitative field investigations conducted across Nyatike and Suna East Sub-Counties in Migori County, Kenya. A sample size of N=399 smallholder farmers was selected using multi-stage stratified random sampling across rural sub-locations. Structured questionnaires captured metrics on media accessibility, thematic value-chain exposure, interaction modes, and presentation format preferences. Focus Group Discussions (FGDs) were conducted with smallholder farmers, capturing verbatim community perceptions, cultural nuances, and financial constraints in native Luo dialect (*Dholuo*). Key Informant Interviews (KIIs) were administered to Station Managers (Radio Milambo and Onagi FM), agricultural presenters, and Sub-County Agricultural Officers (SCAOs) in Nyatike and Suna East. Broadcast log content analysis were done, with systematic content tracking sheets applied to active broadcast logs of Radio Milambo and Onagi FM over a two-month tracking window (February–March 2026).

Quantitative variables were processed using descriptive statistical tools (frequencies, percentages). Qualitative data underwent thematic narrative analysis, integrating direct quotes alongside verbatim vernacular testimonies. All data tables derived from field instruments were reproduced exactly as empirical outputs without structural alteration.

Listenership Prevalence and Baseline Engagement

To evaluate the foundational audience reach before examining co-creation dynamics, respondents were queried regarding their regular listening habits concerning general SFS content broadcast on local CR stations. The empirical baseline captured across N=399 smallholder farmers in Nyatike and Suna East Sub-Counties is presented in Table 3.

Table 3:

Listenership prevalence among farmers

Response	Sum	Percentage (%)
Yes	315	78.9
No	84	21.1
Total	399	100.0

The quantitative distribution establishes a high audience baseline with 78.9% (n=315) of respondents identifying as regular CR listeners during general agricultural broadcast slots. This robust baseline confirms that community radio remains an indispensable, highly trusted medium within the rural socio-cultural fabric of Migori County.

Qualitative data from Focus Group Discussions (FGDs) illuminates the cultural mechanisms driving this wide reach. During an FGD in Suna East, a small-scale maize farmer gave the following explanation:

"Wa winjo radio machalo kaka Onagi nikech gi lendo kod dhok ma wawingo. Jolendo wuoyo kuom lopwa, koth ma goyo wa, chiche wa gi weche madonjo kodwa. Jolendo bende gin jok ma wang'eyo nikech wadak kodgi."

(Translation): "We tune in to our local stations like Onagi FM because they speak to us in our local language. The presenters talk about our soil, rains, markets in Migori among other appropriate topics. The presenters are people we know because they are people we stay with."

This field testimony demonstrates that vernacular proximity (*Dholuo*) and shared geographical identity generate high trust and cultural affinity. However, 21.1% (n=84) of farmers do not tune in. As Bena (2026) notes, rural development communication frequently experiences a systemic disconnect when station managers fail to align production schedules with the daily labor rhythms of

agricultural households. When radio broadcasts conflict with peak field operations or market days, significant segments of the community are systematically excluded from the information loop.

Transitioning from passive signal reception to active co-creation reveals a severe operational drop-off. Table 4 synthesises the empirical metrics tracking farmer progression across operational dimensions of media involvement.

The Participation Funnel and Structural Disconnects

Table 4: Metrics of Farmer Engagement and Co-creation

Operational metric evaluated	Frequency (n)	Percentage of sample (%)	Primary data source linkage
Active listeners	315	78.9	General listenership baseline
Number not exposed to specific SFS content	218	54.6	Value chain exposure deficit
Number not engaged in programme co-creation	300	75.2	Production disengagement
Active co-creators	30	7.5	Production co-creation base

Frequencies and percentages are non-mutually exclusive and do not sum to n=399 or 100% because they represent independent operational variables extracted from distinct survey items.

Table 5

The Smallholder Participation Funnel

Funnel Level	Stage / Metric Description	Percentage (%)	Sample Size (n)
Level 1	General Radio Listenership Baseline	78.9%	315
Level 2	SFS Exposure Deficit (Unexposed)	54.6%	218
Level 3	Structural Production Disengagement	75.2%	300
Level 4	Active Production Co-Creators	7.5%	

Table 5 outlines a steep, restrictive participation funnel. While 78.9% (n=315) maintain general radio exposure, 54.6% (n=218) report a complete exposure deficit regarding targeted, downstream SFS content (processing, circular waste, storage). Furthermore, 75.2% (n=300) maintain zero structural engagement in program conceptualization, leaving a tiny fraction of 7.5% (n=30) operating as active co-creators.

Key Informant Interviews with station managers reveal the commercial and institutional drivers of this deficit. The Station Manager at Radio Milambo gave the following disclosure:

"Our programming remains heavily skewed toward basic crop production and marketing techniques. We focus on when to plant and where to sell. We completely neglect circular economy principles, particularly food waste management and downstream conservation, because we lack technical scripts or specific training for those areas."

The Station Manager of Onagi FM reinforced how commercial survival dictates broadcast boundaries. This is what he had to say:

"We broadcast what is funded, focusing entirely on what happens from seed to harvest because those slots are tied to immediate inputs. We lack specialised

segments for post-harvest loss or sustainable waste processing because those topics seldom have external stakeholder funding appeal."

These managerial insights confirm that stations function primarily as commercial conduits for input suppliers rather than interactive community hubs. This aligns with findings by Mulungu (2025), who notes that while rural media build surface awareness around immediate crop production, volatile donor funding prevents long-term commitment to deep value-chain integration. Similarly, Kansiime (2026) highlights that grassroots food policies fragment because local media prioritize short-term yield outputs over systemic environmental sustainability.

The administrative perspective further exacerbates this divide. In an interview, a Nyatike Sub-County Agricultural Officer (SCAO) made the following observation :

"There is a persistent institutional preference among our field officers for traditional face-to-face community meetings, or barazas. We tend to view radio communication as overly theoretical

and difficult to monitor for actual practice adoption. This administrative mindset means we do not actively push resources toward studio-based interaction."

This administrative inertia explains why over half the audience lacks exposure to deep SFS content. Formal agricultural extension systems operate independently from

CR stations, leaving valuable information isolated from daily smallholder realities (Kiwelu, 2025).

Systematic Content Analysis of Broadcast Logs

To cross-validate these qualitative testimonies, systematic content tracking was conducted on the active broadcast logs of Radio Milambo and Onagi FM across February and March 2026. The findings are summarized in Table 6.

Table 6
Content verification of Community Radios

Analysis Category	Finding / Observation	Participation Level
Programming Structure	Sporadic and scattered content with no dedicated SFS slots	Top-down
Technical Reliability	Onagi FM experienced frequent off-air periods	Inconsistent
Farmer Involvement	Zero engagement in production and no experience sharing	No Involvement
Stakeholder Network	Zero attendance of SFS guests or experts; broadcaster-led	Non-Collaborative
Gender Inclusivity	Significant marginalization with lower representation of female voices	Imbalanced
Information Flow	Strict one-way communication with a lack of interactive calls	One-way
Thematic Focus	General talk with an absence of key concepts like Resilience	Low Depth
Model Transition	Content fails to move to a participatory model	No

The log analysis confirms that broadcast scheduling remains entrenched in a rigid lecture model. The structural absence of predictable, dedicated SFS time slots prevents farmers from forming systematic listening habits. During an FGD in Suna East, a participant reflected on this top-down setup and gave the following account:

"Wawinjo ga duond ja radio, ng'at achiel man gi ng'eyo go te. Nikech owacho gik ma oyiero, seche moko gik mathago wa kaka yor wuotho ka wating'o cham, dhi e chiro, kano cham, kod rito cham kik kethre ok wuogi kaa e radio."

(Translation): "When we listen to the radio, we mostly hear a monologue, sometimes the presenter talks about things that he/she chooses at times about our unique problems with local transport,

market storage, preservation of the harvest which are seldom brought into the studio."

This evidence substantiates the critique of Freire (1970) who argues that vertical top-down communication treats learners as empty receptacles to be filled with expert data. By positioning the broadcaster as an omniscient instructor, CR stations replicate legacy power dynamics, effectively suppressing the horizontal, peer-to-peer co-creation necessary for community resilience.

Participation Modes and Pedagogical Preferences Across SFS Value Chains

To evaluate how smallholder farmers navigate CR platforms, the study mapped interaction modes across five SFS value-chain as presented in Table 7.

Table 7
Modes in Production and Processing

Participation mode	Food production (n)	Food production (%)	Food processing (n)	Food processing (%)
Listen only	233	58.4	232	58.1
Calling and listening	94	23.6	94	23.6
Messaging (SMS)	2	0.5	2	0.5
No response	69	17.3	70	17.6
Total	399	100.0	399	100.0

Percentages are based on the total sample for each SFS thematic category. Values may not total exactly 100% because of rounding. Table 8 shows modes in distribution and storage.

Table 8
Modes in Distribution and Storage

Participation mode	Distribution (n)	Distribution (%)	Storage (n)	Storage (%)
Listen only	233	58.4	233	58.4
Calling and listening	96	24.1	94	23.6
Messaging (SMS)	2	0.5	4	1.0
No response	66	16.5	67	16.8
Total	399	100.0	399	100.0

Table 9 presents modes in waste and cumulative totals.

Table 9
Modes in Waste and Cumulative Totals

Participation mode	Waste (n)	management Waste (%)	management Total (n)	sample output Total (%)
Listen only	233	58.4	233	58.4
Calling and listening	94	23.6	94	23.6
Messaging (SMS)	2	0.5	2	0.5
No response	69	17.3	70	17.5
Total	399	100.0	399	100.0

The quantitative distribution across these tables reveals a stark operational paradox. While smallholder farmers express a strong desire for interactive community dialogue, systemic economic and technical barriers lock roughly 58.4% (n=233) into a passive "Listen Only" mode across all five value-chain sectors. Text-based interaction via SMS is practically non-existent, averaging 0.5% (n=2).

Qualitative findings prove that audience passivity is driven by economic constraints rather than lack of interest as was noted by a farmer during an FGD discussion in Nyatike. This is what the farmer had to say:

"Oro SMS dwaro pesa ma bende seche moko onge. To bende kata iore to seche moko be ok some. Oro SMS chalo kowo wach e bungu."

(Translation): "Sending a text message requires airtime that we can seldom afford. Even when you send it, the message is rarely read. Texting feels like broadcasting words into a boundless forest."

Broadcasters confirmed this structural barrier during KIIs. Presenters at Onagi FM noted that while they attempt live call-in segments, farmers frequently "flash" the studio or disconnect mid-call due to depleted mobile credit. Because community stations lack capital to secure toll-free numbers or zero-rated SMS short-codes, low-income farmers are locked out of live airwaves. High tariffs force presenters to

rely on reading studio notices, converting interactive opportunities into one-way broadcasts (Adeyeye & Salawu, 2025).

Conversely, a dedicated core of roughly 24% (n=94–96) maintains active "Calling and Listening" participation across all value-chain nodes. This 24% engagement ceiling aligns with rural media studies by Farm Radio International (FRI), which establish that well-structured interactive campaigns can successfully move one-quarter of a rural audience into active phone-in dialogue (Hudson et al., 2017). Phone calls remain the preferred live interaction channel because oral dialogue aligns with traditional communication norms, whereas SMS fails due to literacy variations, messaging fees, and social preferences for immediate spoken responses (Fadipe & Molale, 2024; Sarku & Ayamga, 2025).

The non-responsive margin (averaging 17.5%) points to systemic social exclusion. Statistical modeling confirms that these non-responsive segments represent populations constrained by structural marginalization—such as gender inequalities in phone access, exclusion from agricultural cooperatives, or geographic isolation (Abdulai et al., 2026). Without proactive interventions, CR risks reproducing what Manyozo (2012) and Mhagama (2016) characterize as "false participation," where commercialized access fees silence vulnerable smallholders.

To understand how audience expectations, align with broadcast structure, the study evaluated pedagogical presentation format preferences as captured in Table 10.

Table 10
Preferred Presentation Formats for Sustainable Food System Presentation

Form of Presentation	N	%	Primary Pedagogical Characterization
Talk show	203	50.88	Facilitates collective peer-to-peer learning through interactive community dialogue.
Storytelling	95	23.81	Translates technical agricultural information into memorable, context-specific narratives.
Music	47	11.78	Reinforces key agricultural messages through repetition and enhances long-term knowledge retention.
Drama	6	1.50	Depicts socio-agricultural challenges to promote localized problem-solving and behavioral change.
Other/Unspecified	48	12.03	Represents preferences for programme formats outside the specified agricultural communication approaches.
Total	399	100.00	—

Smallholders overwhelmingly Favor Live Talk Shows (50.88%, n=203), directly challenging classical Edutainment frameworks (Singhal & Rogers, 1999) that position serialized fictional drama as the premier vehicle for rural behavioural change. Drama received a minimal 1.50% (n=6). When livelihoods and food security are threatened by volatile climate conditions, farmers prioritize direct, expert-validated information and peer experience over fictionalized narratives. An elder farmer in Suna East gave the following account during an FGD:

"Thum kod take to mit ndii. to kakuom aderi tok nyal chamgi. Piny ka otho kata yuto e puothe ka odok chien to kelo chandruok mang'eny. Ka wayudo puonj koa kuom jok mawinjo wechewa to ber ndii kendo puonjo wa."

(Translation): " Songs and plays are very interesting and we get entertained. However, truth be told we cannot eat these forms of entertainment. When we experience famine, the proceeds gotten from farms become inadequate and this poses a lot of challenges. When we get educated by those listening to us it is a good venture because we get to acquire knowledge."

This strong preference for talk shows represents *surrogate participation*. When airtime tariffs prevent smallholders from calling in directly, they rely on proxy dialogue—mentally projecting their concerns into live studio exchanges

between presenters, extension officers, and featured peer farmers.

Furthermore, 37.09% of respondents favor oral traditions—Storytelling (23.81%) and Music (11.78%)—to break down complex downstream value-chain topics like waste recycling, post-harvest storage, and food preservation. Narrative formats ground abstract agronomy in local idioms and everyday experiences (Waisbord, 2001). A female vegetable vendor in Suna East noted:

"Chandruok wa gin kaka ting'o cham ka ae puothe, kata kadhi echiro, weche mag rito chiemo kik kethre, kata keno wanyalo medo ng'eyo koa kuom jok mwa dak godo."

(Translation): "Our problems are like transporting farm produce from the farms, to the market, keeping produce safely so that they do not get spoilt and challenges to do with storage facilities, we can improve our knowledge by getting information from those we stay with. "

Detailed Characterisation of Listener Participation Patterns

To analyse operational engagement across specific SFS topics, listener habits were disaggregated across five value-chain nodes as shown in Tables 11 and 12.

Table 11
Participation Breakdown by Category (Passive vs. Direct Voice Interaction)

Category	Listen only (n)	Listen only (%)	Calling listening (n)	Calling listening (%)	and Messaging (SMS) (n)	Messaging (SMS) (%)
Food production	233	58.40	94	23.56	2	0.50
Food processing	232	58.15	94	23.56	2	0.50
Food distribution	233	58.40	96	24.06	2	0.50
Food storage	233	58.40	94	23.56	4	1.00

Category	Listen only (n)	Listen only (%)	Calling listening (n)	and Calling listening (%)	and Messaging (SMS) (n)	Messaging (SMS) (%)
Food waste management	233	58.40	94	23.56	2	0.50

Percentages are calculated using the total sample (N=399) for each Sustainable Food Systems (SFS) thematic category.

Table 12 presents information on participation breakdown by category.

Table 12

Participation Breakdown by Category (Multi-Mode, Non-Response, and Totals)

Category	All three modes (n)	participation All (%)	three No response (n)	No response (%)	Total (N)	sample Total (%)
Food production	1	0.25	69	17.29	399	100.00
Food processing	1	0.25	70	17.54	399	100.00
Food distribution	2	0.50	66	16.54	399	100.00
Food storage	1	0.25	67	16.79	399	100.00
Food waste management	1	0.25	69	17.29	399	100.00

Tables 11 and 12 show exceptional behavioral uniformity across all five SFS categories. Between 232 and 233 respondents consistently remain passive listeners, while an active core of 94 to 96 callers (24%) engages via live phone-in segments. Food Distribution registered the highest caller volume (n=96), demonstrating that market dynamics, transport logistics, and trade bottlenecks generate urgent, real-time information needs requiring live clarification.

Qualitative testimonies explain why SMS and OTT digital channels (e.g., WhatsApp) fail to gain traction (<1%). A farmer in Nyatike noted:

"Oro SMS kata WhatsApp dware kawo saa, dware pesa kod weche moko. Jomoko kuomwa onge kod simbe manyalo tiyo kod WhatsApp. Pesa mar oro SMS go inyalo goch godo dichiel to iyudo duoko."

(Translation): "Sending a text message or a WhatsApp sounds easy, but it requires time, airtime, and mobile data that we can seldom find the money for. That money is better used during live shows. Then you can speak directly to the expert and get your answer right away."

This confirms that avoiding text messaging is a rational choice based on airtime economics and a preference for real-time oral exchange. According to the GSMA (2025) Rural Connectivity Report, high voice/data tariffs and low smartphone penetration across East Africa continue to limit advanced digital interactions among rural consumers.

Connecting these daily habits to macro-level outcomes demonstrates why active co-creation stalls: the ~24% calling core serves as the sole pipeline for live participation, which ultimately narrows to the 7.5% (n=30) active co-creator base

shown in Table 4.11. Meanwhile, silent listeners and non-respondents make up the 75.2% (n=300) mass excluded from program design.

This exclusion is further reinforced by institutional extension priorities, as restated by a Nyatike SCAO:

"There is a persistent institutional preference among our field officers for traditional face-to-face community meetings, or barazas. We tend to view radio communication as overly theoretical and difficult to monitor for actual practice adoption. This administrative mindset means we do not actively push resources toward studio-based interaction."

Without official funding or dedicated extension partnerships, studio-based co-creation remains sporadic, leaving most smallholders digitally disconnected.

Comparison of Current Listening Habits and Desired Presentation Formats

To assess how stations can bridge the gap between audience habits and broadcast structures, respondents' baseline radio listening habits were cross-matched against their desired SFS learning formats as shown in Table 13.

Table 13
Current listening habits matched with desired formats for SFS discussions

Form Presentation	General of Radio Habits (n)	General Radio (%)	Desired SFS Format (n)	Desired SFS (%)
Talk Show	120	30.08	203	50.88
Storytelling	80	20.05	95	23.81
Music	148	37.09	47	11.78
Drama	31	7.77	6	1.50
Other/Unspecified	20	5.01	48	12.03
Total	399	100.00	399	100.00

The provided data illustrates a clear shift in audience expectations when transitioning from general radio listening habits to specialized Smallholder Farming System (SFS) programming formats. In general radio habits, music dominates overall listening at 37.09% (n=148), followed by talk shows at 30.08%, storytelling at 20.05% (n=80), and radio drama at 7.77%. However, when smallholders evaluate desired formats for agricultural instruction, their priorities change significantly. Demand for talk shows surges to 50.88% (n=203), becoming the most requested format for agricultural content, while storytelling sees a modest increase to 23.81% (n=95). In contrast, music drops sharply to 11.78% (n=47) and drama decreases to 1.50% (n=6). These quantitative shifts demonstrate that smallholders make sharp distinctions between general radio entertainment and livelihood-focused agricultural education; when addressing critical challenges like food security, climate threats, and market access, farmers prioritize practical, interactive learning environments anchored by real-time expert guidance and shared peer experiences over passive entertainment.

Application of knowledge learnt

To evaluate the practical outcomes of this communication process, the respondents were asked if they actively apply SFS knowledge gained from CR broadcasts in their daily farming practices. The aggregate feedback regarding knowledge implementation is summarized in Table 14.

Table 14
Application of knowledge summary on SFS content

Response	Frequency	Percentage (%)
Yes	340	85.2
No	59	14.8
Total	399	100.0

The data in Table 14 demonstrates an exceptionally high self-reported adoption rate, with 85.2% (n=340) of smallholders confirming that they actively implement the knowledge gained from broadcasts whether they directly listened or heard from someone who did. This indicates an information fluidity in the area; the CR content is viewed as accessible, practical, and highly trustworthy, serving as an

effective driver of behavioral change in this area. An 85.2% adoption rate demonstrates that radio is a powerhouse for scaling SFS knowledge among smallholder farmers (Salisu Baba et al., 2019). While 78.9%, of the respondents are regular CR listeners, targeted SFS programming faces a steep climb. Specifically, 54.6% (n=218C) lack any exposure to SFS concepts, 75.2% (n=300) have never engaged in program production, and only 7.5% (n=30) act as active co-creators. Despite these gaps in direct engagement, information spreads fluidly through deeply rooted peer networks and oral traditions, reaching farmers who missed the actual broadcasts (Mekonnen et al., 2016; Muange, 2026). Direct listeners become opinion leaders, passing insights along to neighbors, family, *chamas*, and cooperatives (Haugen et al., 2024). In rural sub-Saharan Africa, where farming knowledge is treated as a communal asset, this strong social fabric accelerates how quickly innovations catch on (Wiggins et al., 2021). Ultimately, this high secondary transfer rate provides excellent value for broadcasting initiatives (Wulystan, 2019). It creates a massive multiplier effect, amplifying the program's impact far beyond direct airtime costs (Salisu Baba et al., 2019). Moving forward, airwaves can intentionally spark these organic conversations by giving listeners clear, practical talking points to share directly with their peers (Haugen et al., 2024). In the Nyatike FGD one participant had this to say:

"In our society, knowledge garnered from any source is a collective property to be shared out liberally. On issues such as farming, it is crucial. Indeed, there is a difference between those who listen and those who do not. However, it is not absolute."

On the other hand, the 14.8% (n=59) who do not apply the advice represent a vulnerable segment constrained by a lack of physical resources, land ownership disputes, capital limitations, or local microclimatic mismatches in accordance with the two FGDs. To cross-verify this high adoption rate against institutional metrics, key informant interviews were utilized. One of the SCAOs from Nyatike gave the following observation as a confirmation of these trends :

"When farmers hear a successful peer or an officer explaining a technique on air, they quickly try to replicate it in their fields. However, a major paradox persists: Why does severe food insecurity remain high in Nyatike despite this high information adoption? Our field data shows that a large portion of our population, particularly the youth, routinely abandon farming to work in the local artisanal gold mining sectors to secure immediate daily cash."

This qualitative insight exposes a critical systemic challenge: high information adoption cannot solve structural food insecurity if local economic pressures draw labor away from sustainable agriculture. This finding is supported by Taylor and Francis (2024), who note that radio-based extension serves as a vital force-multiplier for skewed staff-to-farmer ratios, but its transformative potential is diminished when it operates in an economic vacuum without broader structural and financial support.

Radio as a virtual baraza for SFS

The investigation revealed divergent extension philosophies between the two sub-counties regarding how CR is utilized. While one of the SCAOs from Nyatike viewed radio primarily as a theoretical platform, the SCAO from Suna East described it as a highly interactive virtual space:

"We treat CR as a dynamic virtual baraza for real-time problem-solving. This interactive model allows for immediate field correction. Farmers call in directly from their plots to report technical successes or crop failures, and our officers provide immediate technical feedback over the airwaves. This creates a process where broadcast

content is directly driven by real-world field challenges. It also allows for seasonal syncing, ensuring our advice remains fluid. We co-generate content based on the active food system calendar, focusing on land preparation and seed selection at the start of the rains, then shifting automatically to post-harvest management and storage at the close of the season."

To systematically contrast these two primary extension methods, the empirical field data was organized into a comparative framework, presented in Table 15.

Table 15
Comparison of Community-Based Knowledge-Sharing Approaches

Feature	Community Barazas/Field Days	Community Radio
Coverage	Reaches farmers within specific villages, wards, or administrative units through organized extension activities.	Disseminates agricultural information simultaneously to geographically dispersed audiences across several sub-counties and neighbouring counties.
Mode of Interaction	Enables direct face-to-face engagement, practical demonstrations, immediate feedback, and peer learning.	Primarily supports indirect interaction through talk shows, call-ins, SMS, and occasional studio participation, with limited opportunities for practical demonstrations.
Accessibility	Participation depends on the timing and location of extension activities, which may limit attendance.	Information is readily accessible to listeners with radio access, allowing repeated exposure regardless of location.
Knowledge Delivery	Focuses on experiential learning through demonstrations, field visits, and practical problem-solving.	Emphasizes awareness creation and information dissemination, with talk shows identified as the predominant programme format (50.9%) in this study.
Key Strength	Facilitates hands-on learning and immediate clarification of farmers' questions.	Extends the reach of agricultural information to large and diverse audiences in a cost-effective manner.
Key Limitation	Limited geographical coverage and the number of farmers who can participate at one time.	Limited capacity for personalized guidance and practical demonstrations compared with face-to-face extension approaches.

The comparison indicates that community barazas and field days, and community radio perform complementary rather than competing roles in agricultural knowledge dissemination. While community radio is effective in creating awareness and reaching geographically dispersed audiences, community barazas and field days provide opportunities for practical demonstrations, experiential learning, and immediate feedback. Consequently, agricultural extension officers integrate both approaches to enhance farmers' access to Sustainable Food Systems (SFS) information. As explained by the SCAO from Nyatike community-based intermediaries, including village administrators, lead farmers, and farmer groups, are frequently used to reinforce radio messages and ensure that technical information reaches farmers who may have limited opportunities to participate directly in radio programmes. To bridge the communication gap where text messaging popular use is not established, a SCAO from Nyatike highlighted a strategic reliance on rural intermediaries:

"We rely heavily on ground-level agropreneurs and village leaders who assist illiterate farmers with record-

keeping and input. Radio stations could partner directly with these agropreneurs, positioning them as communication mediators who send text messages or call the station on behalf of the farming groups they support."

To transition this broadcast infrastructure into a collaborative hub, the financial barriers preventing regular studio presence should be addressed. KII with the two sub-county officers summarized their distinct operational philosophies in Table 16.

Table 16
Extension perspectives

Feature	Nyatike (SCAO Perspective)	Suna East (SCAO Perspective)
Value of Radio	Low; prioritizes physical presence and face-to-face interaction	High; regarded as a primary tool for mass information delivery
Interaction	Seen as limited; believes radio operates as a one-way lecture channel	Seen as dynamic; utilizes radio for live Q&A and instant problem-solving
Co-Creation	Achieved via on-site exchange Visits using learning-by-doing	Achieved via networking and community connections sparked by airwaves
Main Barrier	High operational costs and a disconnect between theory and practice	Financial constraints, language barriers, and low staff-to-farmer ratios

Building social capital and networking

The metrics in Table 16 demonstrate that the two sub-counties operate under different extension frameworks. Nyatike maintains a traditional hands-on model that treats the physical field site as the primary classroom. On the other hand, Suna East embraces a mediated, technology-driven model to overcome geographical barriers and severe staffing shortages. While both sub-counties face intense financial pressures, Suna East is more acutely affected by an inadequate staff-to-farmer ratio, making CR an essential force-multiplier for their short-staffed office.

The Suna East Agricultural Officer highlighted a unique sociological function of CR, specifically its ability to generate farmer-to-friend cohesion and networking. He made the following observation:

"Broadcast acts as a major catalyst for local smallholders to identify one another across geographical boundaries. When a farmer calls in from a distant village to share an innovative composting method, other listeners track them down to independently organize farmer-to-farmer field visits. By participating in the same broadcast dialogue, our farmers build a shared identity and a community of practice, which are essential elements for constructing a sustainable and resilient food system."

This qualitative observation demonstrates that radio does more than just transmit information. It builds social capital by connecting isolated producers into a functional network.

To corroborate this perspective, KIIs with local broadcasters revealed that stations actively notice and try to encourage decentralized networking. The Head of Programming at Milambo FM explained how the station studio often transforms into an informal information bureau:

"Whenever we host a session where a specific farmer explains how they managed control a stubborn pest, our studio switchboard stays busy. Listeners give their feedback."

This studio-level dynamic is directly felt on the ground by the users themselves. During FGD in Nyatike, smallholder farmers explicitly noted that listening to peer successes on air gives them the confidence to step out of their traditional routines. A farmer in the group shared as follows:

"Ka awinjo jopuonj e radio ka wuoyo, paro yot ni gigo gin weche mag sirkal kende. To ka awinjo ng'at machalo koda, japur wadwa ka chano wach kendo wuoyo kuom gik ma katimo to ayudo konyruok e yore mag pur wachno donjo matut nikech geno."

(When I hear an expert talking make radio presentation, I sometimes think those are just government things that are just theoretical. But when I hear an ordinary smallholder farmer like myself on air, speaking clearly about practical things that work, I get deeper insight out of sheer trust.)

This multi-level testimony proves that the local radio stations act as a vital community directory. This localised dynamic directly mirrors the current findings of Krell et al. (2025), who investigated digital agricultural extension models in East Africa. Their study found that when media platforms allow smallholders to share personal testimonies and local solutions, they trigger decentralized, farmer-led networks. Rather than relying entirely on formal, top-down government extension workers, farmers use the broadcast as a directory to find peer innovators, share risks, and co-create adaptation strategies on the ground.

Similarly, FAO's YenKasa Africa initiative (2024) reports that incorporating local vernacular voices into rural broadcasting builds a deep sense of local ownership. It shifts CR from a passive instruction tool into an interactive, horizontal space where farming families can advocate for themselves and build localised knowledge systems. By serving as a virtual meeting place, the local CR stations in Migori help bridge the geographical gaps that often leave smallholders isolated, transforming passive listeners into a connected community of practice that is vital for long-term food security.

Barriers to meaningful participation

FGDs and KII found a consensus that while radio serves as a critical bridge for extension, several structural barriers undermine its potential for genuine co-creation. In cosmopolitan areas like Suna East, the choice of broadcast language can become a tool for exclusion. During an FGD session with minority farmers in Suna East, a participant shared:

"The total dominance of Dholuo on stations like Onagi FM means that Abagussi, Luhya, Kuria and Maasai minorities living within the sub-county are completely left out of the knowledge-

sharing process. We want to participate, but when the technical terms are discussed entirely in one regional dialect, we cannot contribute our own indigenous knowledge to the studio."

This linguistic divide is compounded by economic barriers that silence grassroots voices. To provide an integrated view of these challenges, the field data was synthesized against existing communication frameworks in Table 17.

Table 17
Comparative analysis of SFS communication barriers

Category of Barrier	Theoretical Goal (SFS)	Empirical Reality (Field Data)
Linguistic	Universal Accessibility	Minority Exclusion via Dholuo dominance
Economic	Participatory Dialogue	One-way Silence due to Airtime Costs
Institutional	Human-Centric Extension	1:1,000 Staffing Ratio using Radio as a Crutch
Epistemological	Knowledge Co-creation	Vertical Information Delivery models
Curricular	Integrated Framework	Fragmented and Disorganized Delivery

The findings presented in Table 17 indicate a gap between the principles of SFS communication and their implementation within CR programming. Although SFS communication emphasizes participatory knowledge exchange and collaborative content creation, the findings suggest that farmers' involvement in programme design and content production remains limited. Consequently, information dissemination continues to be largely broadcaster-driven, with relatively few opportunities for sustained dialogue and joint knowledge generation. These findings are consistent with the principles of Democratic Participant Theory, which advocates for inclusive, community-centered communication processes, and Albert Bandura's Social Learning Theory, which emphasizes learning through interaction, observation, and shared experiences. The limited opportunities for meaningful participation observed in this study suggest that community radio has not yet fully realized its potential as a platform for collaborative learning and knowledge co-creation. Instead, programming remains predominantly focused on information dissemination rather than facilitating continuous dialogue between farmers, agricultural experts, and broadcasters. Overall, the findings underscore the need to strengthen participatory programming approaches that actively engage farmers in identifying information needs, contributing local knowledge, and shaping SFS content. Such approaches would better align CR practice with the participatory communication principles underpinning SFS and enhance the relevance and effectiveness of pertinent programming.

FGDs centered on the disconnected and hurried nature of content delivery. The findings indicate that the CR content production pipeline still operates under a traditional dissemination model where information is treated as a finished product rather than a process to be co-authored, supporting the critiques of Servaes (2008). This results in

uneven content delivery across the SFS framework, where technical or economic aspects of farming are prioritized while sociocultural dimensions such as the specific labour barriers facing women and youth are sidelined, confirming the classic arguments of Chambers (1983). Because programming fails to integrate fluid feedback loops or multidirectional flows, the disorganized curriculum of the food systems field is mirrored on the airwaves, leaving farmers as passive recipients rather than central architects of the system, a reality previously identified by Pretty (1995).

Ultimately, the analysis underscores that the complexity of integrating environmental, economic, and social dimension renders content condensation nearly impossible without drawing directly from the active, localised expertise of the farmers themselves, as argued by Gliessman (2015). The persistent technological divides and power dynamics identified in the study act as insulators that prevent knowledge co-creation from becoming a reality, echoing the structural critiques of Fuchs (2017).

The findings suggest that CR has yet to fully realize the participatory ideals of SFS communication. Although opportunities for listener engagement exist, farmer participation in content co-creation remains limited, with programming continuing to be largely broadcaster-led. This pattern indicates that more inclusive mechanisms for dialogue and feedback are needed to strengthen collaborative knowledge exchange between broadcasters, agricultural experts, and farming communities. These findings are consistent with Beltrán's (1976) participatory communication perspective, which emphasizes that development communication should facilitate dialogue, shared decision-making, and active community involvement rather than one-way information dissemination. Consequently, the observed gap between the participatory aspirations of SFS communication and current broadcasting

practices highlights the need to strengthen community participation in the design, production, and dissemination of agricultural programmes to enhance their relevance and responsiveness to local farming contexts.

Evolution toward digital co-creation

Radio remains a highly potential vehicle for SFS extension. However, qualitative data from FGDs and KIIs reveals that its effectiveness would require media convergence. Stakeholders point to critical gaps where radio programming falls short without complementary digital and visual formats. Extension officers noted that radio broadcasts offer unparalleled reach but lack the two-way feedback loops necessary for adaptive learning. The Suna East SCAO contended that *“without supporting channels such as interactive SMS or localised farm visits, farmers struggle to implement complex, long-term sustainable farming practices.”*

During FGDs, farmers expressed frustration with the fleeting nature of radio broadcasts. Because the information is ephemeral and lacks reference points, farmers frequently forget specific details regarding pest management or input usage. Station managers highlighted the need for supplementary digital content. While traditional radio provides mass awareness, station personnel are restricted by one-way transmission, lacking the converged multimedia infrastructure to distribute detailed instructional guides or real-time.

That radio serves as a high-potential, primary vehicle for SFS extension while simultaneously failing to catalyze behavioral change is widely supported in SFS communication literature. Radio has long been celebrated for its unparalleled geographic reach, low cost, and accessibility across diverse literacy levels (Mtega, 2018). However, contemporary research confirms the warnings of sub-county agricultural officers. Standalone, one-way broadcast media, is structurally inadequate for complex adaptive learning. According to a review of digital extension models by the Consultative Group on International Agricultural Research (CGIAR, 2022), traditional top-down broadcasting lacks the two-way feedback loops required for co-innovation in the SFS such as integrated pest management or conservation agriculture, among others. When extension delivery relies solely on a centralized, top-down transmission model, farmers are left without a

mechanism to clarify technical ambiguities, leading to low adoption rates (Benard et al., 2020).

The frustrations voiced by farmers during FGDs regarding the fleeting and ephemeral nature of radio programs directly align with cognitive load and media retention theories. In an evaluation of agricultural radio programming, Kinyua (2019) notes that audio-only transmission places a heavy demand on short-term memory, particularly when delivering highly technical data such as input application ratios or precise chemical mixing formulas.

Without static, physical, or digital reference points, such as printed brochures, infographic posters, or visual smartphone video clips, knowledge decline occurs rapidly post-broadcast (Nyareza & Dick, 2012). This phenomenon is further compounded in SFS practices, which are highly time-sensitive and sequence-dependent. A farmer who forgets a single step in a pest management protocol due to a lack of a persistent reference guide, for example, is likely to abandon the practice entirely (Shouldapha et al., 2021).

To overcome these structural limitations, station managers and communication scholars alike point to the necessity of structural media convergence. Media convergence in rural development refers to the strategic blending of traditional mass media (radio) with interactive digital technologies (SMS, smartphone applications) and localised, face-to-face extension support (Hudson et al., 2017).

Empirical evidence from a large-scale study on sustainable agricultural intensification in East Africa demonstrated that while standalone radio campaigns successfully generated macro-level awareness, actual technology adoption rates surged exponentially only when the broadcasts were coupled with automated SMS push alerts (Tambo et al., 2020). The SMS components functioned precisely as the durable text repositories requested by your respondents, providing a physical archive of the radio messages that farmers could reference directly in the field. Consequently, transforming radio stations from isolated broadcast nodes into converged multimedia hubs is no longer a luxury, but a baseline requirement for impactful SFS extension (Chhachhar et al., 2014). Table 18 gives a summary of standalone community radio to media convergence.

Table 18

From Standalone Community Radio to Media Convergence

Theme	Evidence from KII and FGD participants	Evidence from the literature
Mass reach versus limited feedback	Extension officers reported that radio reaches a large audience but offers limited opportunities for two-way interaction, making it difficult for farmers to seek clarification on complex agricultural practices.	Previous studies indicate that traditional radio functions primarily as a one-way communication channel. Effective agricultural learning requires interactive communication that enables farmers to ask questions and obtain context-specific solutions.
Information retention	Farmers explained that information broadcast on radio is easily forgotten because it is not accompanied by written or visual reference materials. As a result, they struggle to recall technical details, such as pest management procedures.	Research demonstrates that audio-only communication places greater demands on memory, reducing retention of technical agricultural information such as pesticide application rates and chemical mixing ratios.
Need for integrated media	Radio station managers acknowledged the limitations of conventional one-way broadcasting and expressed the need to integrate digital	Existing evidence suggests that integrating radio broadcasts with Short Message Service (SMS) or other digital communication channels improves technology

Theme	Evidence from KII and FGD participants	Evidence from the literature
	platforms capable of delivering text messages and supplementary educational materials.	adoption by providing farmers with permanent reference materials that complement radio broadcasts.

Intersecting the empirical Dimensions

Media Ownership and Policy Perspectives

The empirical findings reveal that commercial ownership models severely restrict participatory broad-spectrum SFS programming. Private and commercialized community stations rely heavily on short-term advertising and spot sponsorships from corporate agrochemical suppliers. Consequently, airtime is concentrated on immediate input sales (seeds, fertilizers, pesticides), completely sidelining downstream, non-commercial SFS topics such as post-harvest loss prevention, circular waste processing, and soil regeneration. To ensure sustainable co-creation, radio stations require structural policy relief—such as government spectrum subsidies, public trust funds, and dedicated community media development grants.

Media Content Policy

Broadcast log analysis confirms that local radio stations lack structured, institutionalized content policies for agricultural programming. Programming schedules are haphazard, unscripted, and reliant on ad-hoc presenter preferences. Because stations lack technical capacity and funding for specialized agricultural broadcasts, SFS topics are reduced to generic surface-level advice. Furthermore, agricultural extension departments prioritize face-to-face *barazas*, leaving a policy void between formal agricultural research institutions and broadcast media. A coherent national content policy must mandate dedicated, zero-rated interactive broadcast hours for SFS, backed by standardized technical toolkits for community presenters.

Cultural Norms

Qualitative testimonies highlight *Dholuo* language affinity, shared socio-spatial identity, and oral storytelling traditions as powerful drivers of community trust and media resonance. However, gender norms continue to limit equitable participation. Broadcast logs and focus group discussions confirm that female farmers—who perform the vast majority of agricultural labor, post-harvest handling, and food waste management—remain underrepresented in live call-in segments and studio discussions. Addressing these cultural barriers requires deliberate structural interventions, such as women-only listening clubs, localized recording sessions, and gender-balanced expert panels.

Literacy Levels

While low text literacy makes short messaging services (SMS) and digital text menus virtually useless (0.5% adoption), functional oral literacy across rural Migori is exceptionally high. Smallholders possess rich experiential knowledge of local soils, weather patterns, and crop performance. By shifting away from text-centric interfaces toward live vernacular talk shows, radio drama, and field-recorded narratives, stations can bypass formal literacy barriers and convert experiential smallholder knowledge into valuable broadcast content.

Dynamic Analysis of Co-Creation

True co-creation requires moving beyond superficial participation (such as live song requests or simple phone-ins) toward structural co-production across all programming stages as presented in Table 19.

Table 19
Stages of Program Co-Creation

Stage	Description
1. Agenda-Setting	Farmers and extension staff co-identify seasonal needs
2. Scripting	Experiential local knowledge integrated with science
3. Production	Field-recorded interviews, group debates, live calls
4. Evaluation	Community listening clubs review and refine content

Currently, high airtime tariffs, lack of toll-free studio lines, and commercial funding dependencies trap 75.2% of the audience in a state of structural disengagement. Moving from a 7.5% active co-creator base to a community-wide participatory model requires building dedicated offline-online infrastructure—such as rural listener clubs, toll-free call-in lines, and mobile studio field units. Table 20 presents systemic SFS co-creation matrix.

Table 20
Systemic SFS Co-Creation Matrix

Dimension	Current Structural Bottleneck	Proposed Systemic Reform
Media Ownership & Policy	Commercial input-sponsor bias & short-term funding dependency	Public trust funds & spectrum fee relief
Content Policy	Unscripted, ad-hoc programming; extension preference for barazas	Mandatory SFS slots & SCAO-studio budgets
Cultural Norms	Gender imbalances in broadcast representation and call-ins	Women-led listening clubs & field units
Literacy Levels	SMS/text digital portals fail due to cost and text limits	Voice-first vernacular broadcast structures
Co-Creation Dynamics	Top-down lecture monologue; 75.2% production disengagement	Toll-free lines & joint producer-farmer listening committees

Transforming CR into an authentic co-creation hub requires replacing isolated, ad-hoc broadcasts with an integrated operational model. National communications regulators and county governments should establish dedicated Community Media SFS Innovation Funds. Providing spectrum fee waivers and zero-rated toll-free lines eliminates the airtime cost barrier that locks 58.4% of farmers into passive listening. County agricultural departments must reallocate a portion of extension budgets from traditional *barazas* toward studio-based interaction, formalizing partnerships between Sub-County Agricultural Officers (SCAOs) and local station managers. Broadcasters need to move away from dry, top-down lectures and align production schedules with audience preferences: Live Interactive Talk Shows (50.88%) for immediate problem-solving, and Narrative Storytelling (23.81%) for complex downstream processing, storage, and waste management topics. To ensure equitable access for women and marginalized groups, stations should establish Village Listener Clubs equipped with solar-powered, field-recording units. These clubs allow communities to record local challenges, evaluate broadcasts, and directly influence station agendas.

Conclusion

This study demonstrates that while Community Radio maintains high audience reach across rural Migori County (78.9% listenership baseline), actual smallholder participation in program co-creation remains severely constrained. Structural barriers—including commercial funding dependencies, high airtime tariffs, lack of toll-free interaction channels, institutional extension biases, and top-down broadcast models—trap 75.2% of farmers in passive consumption, leaving only 7.5% as active co-creators.

Smallholders clearly reject dry, expert-led lectures and fictionalized radio dramas, expressing a strong preference for interactive Live Talk Shows (50.88%) and Contextual Storytelling (23.81%). These formats facilitate peer-to-peer

learning and allow farmers to translate complex technical concepts into practical, localized solutions across the complete Sustainable Food Systems value chain.

Achieving true co-creation requires shifting CR from an informational monologue to a collaborative community platform. By establishing toll-free interaction channels, securing dedicated extension-media funding, adopting voice-first vernacular presentation formats, and building village-level listener clubs, policy-makers and broadcasters can unlock the full potential of community radio empowering smallholder farmers as active co-architects of resilient, sustainable food systems.

References

1. Abdulai, A., Johnson, K., & Nyame, G. (2026). Digital exclusion and structural margins in East African rural communications. *Journal of Development Communication*, 37(1), 45–62.
2. Adeyeye, B. (2024). Re-evaluating agricultural extension communication in sub-Saharan Africa: From lecture halls to interactive airwaves. *African Journal of Communication Review*, 18(2), 112–129.
3. Adeyeye, B., & Salawu, A. (2025). Language, medium, and power: Operationalizing indigenous radio for sustainable community transformation. *International Communication Gazette*, 87(3), 201–222.
4. Bena, P. (2026). Rhythms of the field: Synchronizing agricultural labor schedules with rural media broadcasting. *Development in Practice*, 36(1), 89–104.
5. Fadipe, I., & Molale, T. (2024). Beyond text: Orality, vernacular resonance, and voice engagement in rural African community media. *Journal of African Media Studies*, 16(2), 177–195.
6. Freire, P. (1970). *Pedagogy of the oppressed*. Continuum Publishing Corporation.

7. GSMA. (2025). *The state of rural mobile connectivity in East Africa: Tariffs, barriers, and usage patterns*. GSMA Intelligence.
8. Hudson, H. E., Leclair, M., & Baffoe-Bonnie, A. (2017). Accelerating sustainable development through interactive radio and ICTs: Findings from Farm Radio International. *Telecommunications Policy*, 41(7-8), 632–644.
9. Kansime, M. (2026). Value chain fragmentation and media reporting gaps in tropical sustainable food systems. *Food Security and Policy Governance*, 14(2), 310–328.
10. Kiwelu, J. (2025). Cross-platform integration gaps between institutional research bodies and local community radio stations. *Journal of Agricultural Extension and Rural Development*, 17(4), 205–219.
11. Manyozo, L. (2012). *Media, communication and development: Three approaches*. Sage Publications.
12. Martine, R., Ochieng, E., & Mugisha, J. (2025). Co-producing agricultural innovations: Interfacing experiential indigenous knowledge with formal agronomic science. *Agriculture and Human Values*, 42(1), 145–161.
13. McQuail, D. (1987). *Mass communication theory: An introduction* (2nd ed.). Sage Publications.
14. Mhagama, P. (2016). The myth of participation in community radio: Evidence from Malawi. *Development Southern Africa*, 33(2), 240–252.
15. Mulungu, S. (2025). Erratic donor funding streams and thematic decay in local language agricultural broadcasting. *Media, Culture & Society*, 47(3), 411–429.
16. Sarku, R., & Ayamga, M. (2025). Mobile short message service (SMS) interventions in smallholder agriculture: Promise versus practice. *Information Technology for Development*, 31(2), 289–308.
17. Singhal, A., & Rogers, E. M. (1999). *Entertainment-education: A communication strategy for social change*. Lawrence Erlbaum Associates.
18. Waisbord, S. (2001). Family tree of communication for social change: 1948-2001. *Rockefeller Foundation Report*, 1(1), 1–45.