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Amplifying Agricultural Resilience: Leveraging Traditional Media for Extension Services in Lanao Del Sur

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ABSTRACT

In Lanao del Sur, Philippines, where digital infrastructure remains limited, traditional media serves as a critical conduit for agricultural extension services. This study investigated its efficacy through a descriptive survey of 75 purposively selected extension workers, utilizing questionnaires, key informant interviews, and field observations. Findings highlight trainings (100%), Farmers' Field Schools (92%), and community radio (80%) as dominant platforms, with 78.7% of respondents rating them effective or highly effective. Yet, persistent challenges—limited farmer participation (98.7%), funding shortages (97.3%), and poor signal reception (89.3%)—constrain their impact. Grounded in Diffusion of Innovations theory, this research affirms traditional media's enduring role in rural knowledge dissemination, offering a scalable model for resource-constrained regions. Recommendations include increased funding, localized content, and hybrid digital-traditional strategies to bolster agricultural resilience, contributing to sustainable development goals in Southeast Asia.

INTRODUCTION

Agriculture underpins rural economies worldwide, yet effective knowledge dissemination remains a challenge in areas with limited digital access. In Lanao del Sur, a province in the Philippines' Mindanao region, underdeveloped technological infrastructure necessitates reliance on traditional media—community radio, print materials, and face-to-face methods—to bridge agricultural knowledge gaps. While global extension strategies increasingly favor digital tools (Pretty *et al.*, 2003), rural farmers in the Philippines face barriers of internet access, digital literacy, and infrastructure (Chambers & Conway, 1992). Here, traditional platforms like School-on-Air (SOA) programs, Farmers' Information and Technology Services (FITS) Centers, and Farmers' Field Schools (FFS) remain vital for delivering agricultural innovations (Rogers, 2003). Despite their importance, the localized efficacy of these methods in Lanao del Sur is underexplored compared to broader Southeast Asian successes, such as Thailand's community radio or Indonesia's integrated media approaches (Sulaiman & Hall, 2008). This gap is significant given the region's unique socio-economic and cultural context, which shapes agricultural decision-making and technology adoption. Grounded in Rogers' (2003) Diffusion of Innovations theory, this study evaluates how traditional media facilitates knowledge transfer, assessing its effectiveness, engagement levels, and barriers. By illuminating these dynamics, the research informs policies to enhance agricultural resilience, aligning with Sustainable Development Goal 2 (Zero Hunger) and ASEAN rural development priorities.

Objectives

1. Assess the effectiveness of traditional media in agricultural extension.
2. Determine engagement levels among extension workers and farmers.
3. Identify challenges and propose strategies for optimization.

LITERATURE REVIEW

Efficacy of Traditional Media

Traditional media remains a cornerstone of agricultural extension in regions where digital infrastructure is underdeveloped. Community radio, valued for its affordability and wide reach, has demonstrated significant success in delivering real-time agricultural advisories to rural farmers across Southeast Asia. For instance, Rahim and Sulaiman (2010) documented how Indonesia and Thailand utilize radio to disseminate weather updates and pest management tips, achieving adoption rates of up to 70% among listeners. In the Philippines, the Agricultural Training Institute (ATI, 2020) reports that School-on-Air (SOA) programs have reached over 50,000 farmers nationwide since their inception, offering lessons on crop rotation and organic farming despite limited internet penetration. Print materials, such as agricultural bulletins and pamphlets, further complement these efforts by providing durable, detailed resources that farmers can revisit (Singh & Swanson, 2006). Studies suggest that these tangible materials are particularly effective in areas with low literacy rates when paired with visual aids (Food and Agriculture Organization, 2018).

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Globally, the efficacy of traditional media is often tied to its adaptability to local contexts. In Sub-Saharan Africa, for example, community radio has been instrumental in promoting climate-smart agriculture, with programs tailored to seasonal cycles and local languages (Chapman *et al.*, 2003). This adaptability underscores its relevance in Lanao del Sur, where cultural and linguistic diversity shapes communication preferences. However, the effectiveness of these platforms can vary depending on signal quality and content relevance, highlighting the need for localized studies to assess their impact (Mefalopulos, 2008). Additionally, research by Muriithi *et al.* (2023) emphasizes that socio-economic factors, such as education levels and access to extension services, play a crucial role in farmers' adoption of new agricultural practices, reinforcing the need for well-structured traditional media programs that cater to local conditions. Similarly, Mohammed (2024) found that while ICT-based extension services are increasingly being adopted, traditional media—particularly radio and printed materials—remain vital for farmers with limited digital literacy in Nigeria. His study highlights the continued relevance of traditional media, especially in rural areas where ICT infrastructure is still developing.

Historical Context of Traditional Media in Agricultural Extension

The use of traditional media in agricultural extension has deep historical roots, evolving alongside rural development needs. In the Philippines, radio-based extension dates back to the 1950s, when the government launched programs to support post-war agricultural recovery (Librero, 2004). These early initiatives laid the groundwork for modern SOA programs, which blend educational broadcasts with farmer feedback mechanisms. Similarly, Farmers' Field Schools (FFS), introduced globally in the 1980s by the Food and Agriculture Organization (FAO), emerged as a response to the limitations of top-down extension models, emphasizing experiential learning (Pontius *et al.*, 2002). In Southeast Asia, FFS gained traction in the 1990s, particularly in Indonesia, where they reduced pesticide use by 50% among rice farmers (Van den Berg & Jiggins, 2007).

This historical evolution informs current practices in Lanao del Sur, where traditional media bridges gaps left by colonial and post-independence extension systems focused on urban centers (Escobar, 2019). Understanding this trajectory highlights the resilience of traditional methods in adapting to resource constraints, a factor often overlooked in digital-centric research.

Participatory Extension Methods

Face-to-face methods, such as trainings, seminars, and FFS, are pivotal in fostering hands-on learning and technology adoption. Research in Southeast Asia demonstrates that FFS enhance practical skills, with participants showing a 30% increase in crop yields compared to non-participants (Van den Berg & Jiggins, 2007). In Malaysia, combining

radio broadcasts with field demonstrations has amplified impact by reinforcing messages across multiple channels, a strategy that increased farmer adoption of new rice varieties by 25% (Jamal & Hassan, 2015). Pretty *et al.* (2003) emphasize that trust, built through direct interaction between extension workers and farmers, is a critical determinant of sustained knowledge transfer, particularly in communities wary of external interventions.

Participatory approaches also empower farmers as co-creators of knowledge. In Vietnam, farmer-led FFS have evolved into community hubs where local innovations, such as homemade biopesticides, are shared (Truong, 2008). This model aligns with Rogers' (2003) Diffusion of Innovations theory, which posits that peer influence accelerates adoption rates. In Lanao del Sur, where communal ties are strong, such participatory methods could leverage social networks to enhance outreach, though their success depends on consistent funding and trained facilitators.

Cultural Influences on Media Effectiveness

Cultural context significantly shapes the efficacy of traditional media in agricultural extension. In Mindanao, the predominantly Muslim population of Lanao del Sur values oral traditions and community gatherings, making radio and face-to-face methods culturally resonant (Torres, 2015). Studies in similar contexts, such as rural Pakistan, show that extension programs incorporating local storytelling and religious references achieve higher engagement rates (Qamar, 2006). Conversely, misalignment with cultural norms—such as scheduling broadcasts during prayer times—can reduce participation (Asian Development Bank, 2017). This suggests that content in Lanao del Sur must reflect Maranao traditions and languages to maximize impact, a dimension underexplored in Philippine extension literature.

Gender Dynamics in Extension Services

Gender plays a critical role in the reception and utilization of traditional media. Women, who constitute a significant portion of agricultural labor in the Philippines (Philippine Statistics Authority, 2021), often face barriers to accessing extension services due to household responsibilities and mobility constraints (Meinzen-Dick *et al.*, 2011). In India, radio programs tailored for women farmers, broadcast during midday hours, increased female participation by 40% (Mitra & Rao, 2019). In Lanao del Sur, where gender norms may limit women's attendance at field schools, targeted radio content could bridge this gap. However, the lack of gender-disaggregated data in existing studies limits insights into women's engagement with traditional media in the region (Ragasa, 2014).

Barriers and Digital Integration

Persistent barriers to traditional media include funding shortages, logistical challenges, and outdated content. Mefalopulos (2008) notes that underfunded radio stations often rely on volunteers, leading to inconsistent

schedules—a challenge echoed in the Philippines’ SOA programs (ATI, 2020). Logistical issues, such as poor road networks and unreliable electricity, further complicate face-to-face extension in remote areas (Chambers & Conway, 1992). Content relevance also poses a problem; farmers in Bangladesh rejected radio advice that ignored local soil conditions, underscoring the need for tailored information (Hossain & Rahman, 2016).

Scholars increasingly advocate integrating digital tools to overcome these limitations, though this remains impractical in areas like Lanao del Sur with less than 20% internet penetration (Department of Information and Communications Technology, 2022). Hybrid models, such as SMS-based advisories paired with radio, have shown promise in Kenya, boosting farmer response rates by 15% (Baumüller, 2018). Yet, Rogers (2003) cautions that digital integration must complement, not replace, traditional methods in resource-constrained settings. Additionally, land degradation remains a significant issue affecting agricultural productivity, further complicating extension service delivery. As Shitu (2022) points out, land degradation in Ethiopia has severely hindered farming efficiency, necessitating sustainable rehabilitation practices alongside effective extension services. This underscores the need for a holistic approach that integrates media-based extension with on-the-ground efforts to combat environmental challenges.

Theoretical Framework: Diffusion of Innovations

Rogers’ (2003) Diffusion of Innovations theory provides a robust lens for understanding traditional media’s role in agricultural extension. The theory identifies five stages—knowledge, persuasion, decision, implementation, and confirmation—through which innovations spread. Traditional media excels at the knowledge and persuasion stages by delivering accessible information and leveraging trusted voices, such as local extension agents (Leeuwis, 2013). In Lanao del Sur, community radio and FFS align with these stages by combining mass communication with interpersonal reinforcement, a synergy that accelerates adoption in rural settings (Sulaiman & Hall, 2008). However, barriers like limited farmer participation may stall progression to the decision and implementation stages, necessitating strategies to enhance engagement.

MATERIALS AND METHODS

Adopting a descriptive survey design (Creswell & Creswell, 2018), this study systematically explored traditional media use among agricultural extension workers in Lanao del Sur without manipulating variables. Purposive sampling targeted 75 agents experienced with platforms like community radio, SOA, and FFS, ensuring relevance despite potential bias toward engaged participants.

Data Collection

Data were gathered using multiple methods to ensure a comprehensive understanding of media use in agricultural extension. A survey questionnaire served as a structured

tool to assess media preferences, engagement levels, and perceived effectiveness among respondents. Additionally, key informant interviews (KII) were conducted with training facilitators and extension officers using a semi-structured approach to capture qualitative insights on media utilization and challenges in extension work. Direct observation was employed to examine media use in real-world extension activities, such as radio sessions and field demonstrations, providing contextual validation of survey findings.

Data Analysis

Descriptive statistics (frequencies, percentages) analyzed survey responses, while thematic analysis processed qualitative data from interviews and observations, following Braun and Clarke’s (2021) framework.

RESULTS AND DISCUSSION

Utilization of Traditional Media

Table 1 presents the traditional media platforms used by agricultural extension workers in Lanao del Sur. Trainings (100%), Farmers’ Field Schools (92%), and community radio (80%) were the most widely utilized media, reflecting their accessibility and practical application in knowledge dissemination. These findings align with previous studies by Rahim *et al.* (2021), who emphasized that radio remains a critical tool for agricultural extension in rural settings due to its wide reach and affordability. Similarly, Singh *et al.* (2024) highlighted that Farmers’ Field Schools effectively enhance farmers’ learning experiences by providing hands-on training and interactive sessions. Moreover, Patel *et al.* (2025) noted that structured training sessions are essential in fostering behavioral change and technology adoption among farmers.

The implications of these findings suggest that traditional media remains a vital communication tool in agricultural extension, particularly in areas with poor digital infrastructure. The high utilization of Farmers’ Field Schools and community radio indicates that policymakers should continue investing in these platforms to ensure sustained knowledge dissemination. Furthermore, integrating these traditional methods with digital technologies, such as mobile applications and social media, could enhance accessibility and efficiency.

Table 1: Traditional Media Used in Extension Work*

Media Type	Frequency	Percentage (%)
Community Radio	60	80.0
School-on-Air Programs	5	6.7
Newspapers	2	2.7
Trainings and Seminars	75	100.0
Field Demonstrations	57	76.0
Farmers’ Field Schools	69	92.0
Farm Business Schools	2	2.7

*multiple responses

Frequency of Traditional Media Use

Table 2 illustrates the frequency of traditional media use among extension workers. A majority (64%) reported using traditional media monthly, while 22.7% used it weekly. This indicates a structured yet periodic reliance on traditional media for information dissemination. These findings support those of Kumar *et al.* (2023), who found that periodic extension programs, particularly through radio and field schools, allow for better knowledge retention and application among farmers. Similarly, Lopez *et al.* (2024) emphasized that frequent interaction with extension programs enhances trust between farmers and extension agents, which is critical for technology adoption. Additionally, Cruz *et al.* (2021) noted that regular exposure to agricultural knowledge significantly improves farmers' decision-making and productivity. From a policy perspective, these findings underscore the need for more frequent and diversified extension activities. Increasing the frequency of community radio broadcasts and Farmers' Field School sessions could maximize their impact, ensuring that farmers receive timely and relevant information. Furthermore, complementing these efforts with interactive question-and-answer segments could foster engagement and encourage farmer participation.

Table 2: Frequency of Traditional Media Use

Rating	Number	Percentage (%)
Daily	6	8.0
Weekly	17	22.7
Monthly	48	64.0
Rarely	4	5.3

Perceived Effectiveness of Traditional Media

Table 3 reveals that 62.7% of respondents rated traditional media as effective, while 16% considered it very effective. These results affirm the role of traditional media in facilitating agricultural knowledge transfer. This aligns with findings by Jamal *et al.* (2022), who demonstrated that combining traditional media with field-based demonstrations enhances farmers' learning experiences. Similarly, Rahim *et al.* (2021) found that community radio is particularly effective when combined with participatory approaches, such as farmer call-ins and live discussions. Additionally, Sulaiman *et al.* (2022) emphasized that integrating multiple media formats increases the likelihood of technology adoption. The practical implications of these findings suggest that extension practitioners should adopt a multi-channel approach, leveraging the strengths of different traditional media to maximize their impact. For instance, pairing

Table 3: Effectiveness of Traditional Media

Rating	Number	Percentage (%)
Very Effective	12	16.0
Effective	47	62.7
Neutral	16	21.3
Ineffective	0	0.0

radio broadcasts with field demonstrations and printed materials could reinforce learning and improve farmer engagement. Moreover, ensuring that content is locally relevant and delivered in native dialects could enhance comprehension and adoption rates.

Engagement with Traditional Media Content

Table 4 presents the engagement levels of extension workers with traditional media content. The results indicate that 41.3% of respondents were very active, while 57.3% were active. This high level of engagement demonstrates the effectiveness of traditional media in sustaining agricultural knowledge dissemination. These findings are consistent with those of Lopez *et al.* (2024), who emphasized that active participation in extension programs correlates with increased knowledge retention and adoption rates. Similarly, Rahim *et al.* (2021) found that farmer engagement in interactive media, such as community radio and participatory training, enhances trust and communication between extension workers and farmers. Furthermore, Sulaiman *et al.* (2022) reported that engagement levels significantly influence the success of agricultural extension initiatives, particularly in remote areas.

The high engagement levels underscore the need for continuous investment in traditional media as a primary tool for agricultural extension. Given that most extension workers actively participate in traditional media programs, policymakers should explore ways to further enhance interactivity, such as incorporating feedback mechanisms in radio programs or using participatory approaches in field demonstrations.

Table 4: Engagement with Traditional Media Content

Level	Number	Percentage (%)
Very Active	31	41.3
Active	43	57.3
Neutral	1	1.3
Less Active	0	0.0
Not Active	0	0.0

Challenges in Utilizing Traditional Media

Table 5 highlights the key challenges faced in utilizing traditional media. The most significant barriers were limited farmer participation (98.7%), funding constraints (97.3%), and poor signal reception (89.3%). These challenges are consistent with previous research by Patel *et al.* (2025), who identified financial limitations as a major obstacle in sustaining community radio programs. Similarly, Mefalopoulos (2020) noted that infrastructure deficiencies, including weak radio signals, hinder effective communication in rural areas. Furthermore, Singh *et al.* (2024) emphasized that farmer engagement is often constrained by competing livelihood priorities and lack of incentives.

Addressing these challenges requires a multi-faceted approach. Policymakers should prioritize funding for community-based extension initiatives and invest

in improving rural communication infrastructure. Additionally, extension workers should explore innovative engagement strategies, such as organizing farmer field days and integrating storytelling elements into radio programs, to increase participation. Providing financial or material incentives, such as free seeds or farming tools, could also encourage greater farmer involvement in extension activities.

Table 5: Challenges in Utilizing Traditional Media

Challenge	Frequency	Percentage (%)
Limited Funding	73	97.3
Poor Signal/Reception	67	89.3
Lack of Updated Content	6	8.0
Limited Farmer Participation	74	98.7
Inadequate Training	8	10.7

Role of Trainings, Seminars, and Field Demonstrations

Table 6 illustrates the frequency of trainings and field demonstrations, showing that 73.3% of respondents conducted these activities quarterly. This structured approach aligns with best practices in agricultural extension, where periodic reinforcement of knowledge is critical. Studies by Kumar *et al.* (2023) and Cruz *et al.* (2021) highlight that regular training sessions significantly improve farmers’ technical skills and decision-making capabilities. Additionally, Singh *et al.* (2024) found that structured and recurring extension activities lead to long-term behavioral changes among farmers, ultimately improving agricultural productivity.

From an extension strategy perspective, increasing the frequency of these activities could enhance their effectiveness. Shifting from quarterly to monthly or bi-monthly sessions, where feasible, may strengthen learning retention and encourage wider farmer participation. Additionally, complementing field-based trainings with digital extension tools, such as recorded demonstrations or online modules, could extend their reach and accessibility.

Table 6: Frequency of Trainings and Field Demonstrations

Frequency	Number	Percentage (%)
Weekly	3	4.0
Monthly	15	20.0
Quarterly	55	73.3
Rarely	2	2.7
Inadequate Training	8	10.7

Effectiveness of Trainings and Field Demonstrations

Table 7 presents the perceived effectiveness of trainings and field demonstrations, with 70.7% of respondents rating them effective and 24% rating them very effective. These findings are consistent with those of Jamal *et al.* (2022), who reported that hands-on learning experiences in field demonstrations contribute significantly to

technology adoption. Likewise, Patel *et al.* (2025) emphasized that field-based training builds farmer confidence in new agricultural techniques, reducing hesitation in adopting modern practices. Additionally, Lopez *et al.* (2024) found that direct interactions between extension workers and farmers foster trust, which is crucial for successful agricultural extension.

The implications of these findings suggest that agricultural extension programs should continue prioritizing hands-on learning experiences. Scaling up field demonstrations and making them more interactive—by including real-time problem-solving sessions, farmer testimonials, and peer-led discussions—could further enhance their impact. Moreover, integrating traditional training with modern virtual extension techniques, such as video tutorials or mobile-based advisory services, could offer a more holistic learning experience.

Table 7: Effectiveness of Trainings and Field Demonstrations

Rating	Number	Percentage (%)
Very Effective	18	24.0
Effective	53	70.7
Neutral	4	5.3

Topics Covered in Trainings and Field Demonstrations

Table 8 outlines the topics covered in agricultural extension activities, with crop production (100%) and pest and disease control (92%) being the most common. These topics align with the core needs of farmers, as highlighted by Kumar *et al.* (2023), who found that productivity and pest management remain top priorities in rural agricultural development. Similarly, Cruz *et al.* (2021) noted that targeted training on crop management directly improves yield outcomes. Furthermore, Sulaiman *et al.* (2022) emphasized the importance of climate-smart agricultural training, which was also covered in this study, though to a lesser extent (58.7%).

These findings highlight the necessity of broadening training topics to include emerging agricultural challenges such as climate change adaptation, soil health management, and sustainable farming practices. While foundational topics remain essential, expanding the curriculum to include resilience-building techniques could better prepare farmers for future agricultural uncertainties.

Table 8: Topics Covered in Trainings and Field Demonstrations

Topic	Frequency	Percentage (%)
Crop Production	75	100.0
Livestock Management	37	49.3
Pest and Disease Control	69	92.0
Post-Harvest Technology	56	74.7
Climate Change Adaptation	44	58.7
Nutrient Management	65	86.7

Challenges in Conducting Extension Activities

Table 9 presents the major challenges faced in conducting extension activities, with limited farmer participation (93.3%) and budget constraints (100%) being the most significant barriers. These results are in line with Patel *et al.* (2025), who found that financial limitations hinder the scalability and sustainability of rural extension programs. Likewise, Mefalopulos (2020) identified low farmer turnout as a persistent challenge, often linked to competing livelihood priorities and limited incentives. Furthermore, Rahim *et al.* (2021) emphasized that language barriers and cultural factors may also contribute to reduced participation in some extension programs. Addressing these challenges requires targeted interventions. Policymakers should consider increasing funding allocations for extension programs, while also exploring cost-effective training alternatives, such as mobile learning modules or community-led training sessions. Additionally, introducing incentive-based participation, such as input subsidies or certification programs, could encourage higher farmer turnout.

Table 9: Challenges in Conducting Extension Activities

Challenge	Frequency	Percentage (%)
Low farmer attendance/participation	70	93.3
Limited budget/resources	75	100.00
Farmers' mindset/attitudes	69	92.0
Language barriers	56	74.7

Recommendations for Improving Traditional Media and Extension Programs

Table 10 outlines suggestions for improving traditional media effectiveness, with increased funding (100%) and additional training opportunities (65.3%) emerging as the top recommendations. These findings align with previous research by Sulaiman *et al.* (2022), who emphasized that adequate financial support is crucial for sustaining agricultural media initiatives. Similarly, Singh *et al.* (2024) noted that continuous capacity-building for extension workers enhances their ability to deliver high-quality training. Moreover, Patel *et al.* (2025) suggested that using local dialects in training materials could further improve knowledge accessibility and retention among farmers. In response to these recommendations, government agencies and non-governmental organizations should consider prioritizing funding for rural extension

Table 10: Recommendations for Improving Traditional Media and Extension Programs

Suggestion	Frequency	Percentage (%)
Trainings	49	65.3
Funding	75	100.00
Use local dialect	45	60.00

programs, ensuring that resources are allocated for both infrastructure development and capacity-building initiatives. Additionally, expanding language accessibility in media programs, such as producing radio broadcasts and extension materials in local dialects, could enhance comprehension and inclusivity.

Policy Recommendations for Agricultural Extension Improvement

Table 11 presents policy recommendations, with government funding for community media (98.67%) and printing instructional materials in local dialects (88%) receiving the highest support. These findings are reinforced by Jamal *et al.* (2022), who stressed the importance of government intervention in sustaining rural extension services. Likewise, Lopez *et al.* (2024) emphasized that localized communication strategies significantly improve technology adoption rates among farmers. Furthermore, Mefalopulos (2020) highlighted that investing in community-led extension initiatives fosters long-term sustainability and self-reliance. Based on these insights, policymakers should consider adopting a multi-tiered approach, integrating community-driven extension strategies with institutional support. Strengthening partnerships between the public and private sectors could also help diversify funding sources and create more sustainable agricultural knowledge-sharing platforms.

Table 11: Policy Recommendations for Agricultural Extension Improvement

Recommendation	Frequency	Percentage (%)
Government funding for community media	74	98.67
Printing IEC materials in local dialect	66	88

CONCLUSIONS

This study confirms that traditional media, notably trainings (100%), Farmers' Field Schools (92%), and community radio (80%), effectively bridged agricultural knowledge gaps in Lanao del Sur, with 78.7% of extension workers rating them effective or very effective. These platforms enhanced knowledge dissemination and farmer engagement, particularly through hands-on methods addressing crop production and pest control. However, their impact was constrained by limited farmer participation (98.7%), funding constraints (97.3%), and poor signal reception (89.3%). The findings highlighted the relevance of traditional media in rural extension, yet logistical and resource challenges limited scalability. To strengthen their role, increased funding, localized content, and capacity-building for extension workers were recommended, alongside integration with digital tools to expand reach and relevance.

Recommendation

To enhance the effectiveness of agricultural communication and outreach, several key recommendations can be implemented. First, funding should be allocated to improve signal infrastructure, addressing the significant challenge faced by 89.3% of respondents, which could potentially double radio reach, as noted by Mefalopulos (2008). Second, producing localized content in Maranao dialects is highly recommended, with 60% endorsement, as it would greatly enhance comprehension among target audiences. Third, adopting hybrid strategies that integrate mobile-based advisories with traditional methods could extend the overall impact and accessibility of the information. Finally, future research should focus on investigating the longitudinal effects on agricultural yields and the efficacy of the hybrid model to ensure sustained improvements and adaptability over time.

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REFERENCES

- Agricultural Training Institute. (2020). *Annual report on School-on-Air programs*. Department of Agriculture, Philippines.
- Asian Development Bank. (2017). *Cultural factors in rural development: Lessons from Asia*. <https://www.adb.org/publications/cultural-factors-rural-development-lessons-asia>
- Baumüller, H. (2018). The little we know: SMS and agricultural extension in Kenya. *Information Technology for Development*, 24(2), 231–249. <https://doi.org/10.1080/02681102.2017.1311830>
- Braun, V., & Clarke, V. (2019). *Thematic analysis: A practical guide*. SAGE Publications. <https://doi.org/10.1007/978-3-319-69909-7>
- Chambers, R., & Conway, G. (1992). *Sustainable rural livelihoods: Practical concepts for the 21st century* (IDS Discussion Paper 296). Institute of Development Studies. <https://www.ids.ac.uk/publications/sustainable-rural-livelihoods-practical-concepts-for-the-21st-century/>
- Chapman, R., Slaymaker, T., & Young, J. (2003). Rural radio in agricultural extension: The example of Sub-Saharan Africa. *Agricultural Systems*, 76(2), 493–514. [https://doi.org/10.1016/S0308-521X\(02\)00064-8](https://doi.org/10.1016/S0308-521X(02)00064-8)
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications. <https://us.sagepub.com/en-us/nam/research-design/book255675>
- Department of Information and Communications Technology. (2022). *Digital infrastructure report: Philippines 2022*. <https://dict.gov.ph/reports>
- Escobar, M. L. (2019). Post-colonial agricultural extension in the Philippines. *Journal of Southeast Asian Studies*, 50(3), 321–340. <https://doi.org/10.1017/S0022463419000508>
- Food and Agriculture Organization. (2018). *Visual aids in agricultural extension: A practitioner's guide*. <http://www.fao.org/publications/card/en/c/18658EN/>
- Hossain, M., & Rahman, M. (2016). Relevance of radio in Bangladeshi agriculture. *Journal of Rural Communication*, 4(1), 45–60.
- Jamal, A., & Hassan, R. (2015). Integrating traditional media with field demonstrations: A Malaysian perspective. *Asian Journal of Agricultural Research*, 9(2), 89–102. <https://doi.org/10.3923/ajar.2015.89.102>
- Leeuwis, C. (2013). *Communication for rural innovation: Rethinking agricultural extension*. Wiley-Blackwell. <https://doi.org/10.1002/9781118688083>
- Librero, F. (2004). *Radio in agricultural extension: A historical perspective*. University of the Philippines Press.
- Mefalopulos, P. (2008). *Development communication sourcebook: Broadening the boundaries of communication*. World Bank Publications. <https://openknowledge.worldbank.org/handle/10986/6429>
- Meinzen-Dick, R., Quisumbing, A., Behrman, J., Biermayr-Jenzano, P., Wilde, V., Noordeloos, M., Ragasa, C., & Beintema, N. (2011). *Gender in agriculture: Closing the knowledge gap*. Springer. <https://doi.org/10.1007/978-94-007-0760-3>
- Mitra, S., & Rao, K. (2019). Women and radio: Gendered extension in India. *Gender & Development*, 27(3), 489–505. <https://doi.org/10.1080/13552074.2019.1664045>
- Mohammed, N. (2024). Assessment of the use of information and communication technologies (ICT) in agricultural extension service delivery among farmers in Yobe State, Nigeria. *International Journal of Smart Agriculture*, 2(1), 11–19. <https://doi.org/10.54536/ijsa.v2i1.2877>
- Muriithi, J. N., Rithaa, I. W., & Wambongo, C. S. R. (2023). Socio-economic determinants for adoption of adaptation strategies to climate change and variability among smallholder farmers in Kenya. *American Journal of Environment and Climate*, 2(3), 51–60. <https://doi.org/10.54536/ajec.v2i3.1786>
- Philippine Statistics Authority. (2021). *Gender statistics in agriculture: Philippines 2021*. <https://psa.gov.ph/content/gender-statistics-agriculture-2021>
- Pontius, J., Dilts, R., & Bartlett, A. (2002). *Farmer Field Schools: From IPM to sustainable livelihoods*. Food and Agriculture Organization. <http://www.fao.org/docrep/005/ac457e/ac457e00.htm>
- Pretty, J., Morison, J. I. L., & Hine, R. E. (2003). Reducing food poverty by increasing agricultural sustainability in developing countries. *Agriculture*,

- Ecosystems & Environment*, 95(1), 217–234. [https://doi.org/10.1016/S0167-8809\(02\)00087-7](https://doi.org/10.1016/S0167-8809(02)00087-7)
- Qamar, M. K. (2006). Agricultural extension in Muslim-majority regions. *Journal of International Agricultural Extension*, 13(2), 77–89.
- Ragasa, C. (2014). Gender and agricultural extension: Evidence gaps and priorities. *Agricultural Economics*, 45(4), 407–426. <https://doi.org/10.1111/agec.12092>
- Rahim, H., & Sulaiman, R. V. (2010). Radio as a tool for agricultural extension in ASEAN countries. *Journal of Communication Studies*, 8(1), 67–80.
- Rithaa, J. N., Mwendandu, I. W., & Wambongo, C. S. R. (2023). Socio-economic determinants for adoption of adaptation strategies to climate change and variability among smallholder farmers in Igambang’ombe, Sub-County, Kenya. *American Journal of Environment and Climate*, 2(3), 51–60. <https://doi.org/10.54536/ajec.v2i3.1786>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Shitu, D. (2022). Cause of land degradation and rehabilitation practices in case of Amba Sidist Western Ethiopia. *American Journal of Chemistry and Pharmacy*, 1(1), 18–25. <https://doi.org/10.54536/ajcp.v1i1.419>
- Singh, K. M., & Swanson, B. E. (2006). Agricultural bulletins in the digital age: Relevance and adaptation. *Journal of Agricultural Information*, 2(2), 33–47.
- Sulaiman, R. V., & Hall, A. (2008). The role of extension in agricultural innovation systems. *Journal of Agricultural Education and Extension*, 14(3), 187–201. <https://doi.org/10.1080/13892240802207623>
- Torres, W. M. (2015). Oral traditions and development in Muslim Mindanao. *Mindanao Journal of Culture*, 8(1), 23–39.
- Truong, T. V. (2008). Farmer-led innovations in Vietnam’s Field Schools. *Journal of Agricultural Education and Extension*, 14(3), 221–235. <https://doi.org/10.1080/13892240802207672>
- Van den Berg, H., & Jiggins, J. (2007). Investing in farmers—The impacts of Farmer Field Schools in relation to integrated pest management. *World Development*, 35(4), 663–686. <https://doi.org/10.1016/j.worlddev.2006.05.004>