

9-2022

Exploring the Impacts of Lead Farmer Selection on Community Social Learning: The case of Farmer-to-Farmer Model: A Review of Literature

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Recommended Citation

Ochieng, W., Silvert, C. J., & Diaz, J. (2022). Exploring the Impacts of Lead Farmer Selection on Community Social Learning: The case of Farmer-to-Farmer Model: A Review of Literature. *Journal of International Agricultural and Extension Education*, 29(3), 7-31. <https://doi.org/10.4148/2831-5960.1022>

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Keywords

Lead farmer selection, extension effectiveness, farmer-to-farmer, social learning, community perception

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Abstract

Agricultural extension has shifted towards community-centric, farmer-centered, and participatory approaches that enhance rural change through a social learning lens, resulting in the emergence of the farmer-to-farmer extension model. The purpose of the study was to understand lead farmer selection criteria within the farmer-to-farmer model and their impacts on community social learning. We applied Torraco's (2005) integrative literature review method to guide our discussion around lead farmer selection processes, types of lead farmers selected and their impacts on social learning. The study indicated farmer-to-farmer extension model has the potential of re-invigorating the provision of agriculture extension services owing to its low cost, reliability, and the potential to be sustainable. However, farmer-to-farmer faces numerous challenges such as a lack of funding, limited community adoption, and acceptance of the system. This study's findings suggest the farmer-to-farmer approach can be more effective when stakeholders, especially the community is actively involved in designing, implementing, and evaluating the model. The study recommends that practitioners work closely with the community to develop long-term relationships based on trust through intentionality and inviting attitude that respects and values community knowledge.

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Introduction

Agricultural extension is vital for enhancing rural communities' access to knowledge, technologies, input, and output markets necessary to boost agricultural productivity, food security, and income (Rivera & Alex, 2004). Nevertheless, extension has faced many challenges, especially in developing countries, including dwindling agricultural funding, poorly remunerated personnel, an increasingly diverse farming population to serve, and emerging threats of climate change (Afful, 2016). Furthermore, the high ratio of extension agents to farmers in developing countries coupled with the dispersed nature of living in most rural areas has impeded extension's reach and impact (Ofuoku & Agbamu, 2013). The convergence of these issues inhibited the provision of extension services, leaving many farmers with unaddressed needs (World Bank, 2012).

To address these challenges, extension systems continued to evolve to meet the burgeoning needs of the clientele (FAO, 2017). Initially, governments in developing nations provided extension as a public good, often using the Training & Visit (T&V) model where government extension officers passed down recommended new farming techniques to farmers for adoption (Anderson, 1998; Davis, 2008; Swanson & Rajalahti, 2010). A major criticism of the T&V model was the lack of community engagement in the creation of knowledge meeting their needs (Rivera & Alex, 2004). These failures of the T&V model underscored the shift from the one-way technology transfer T&V model towards more pluralistic and community-based approaches (Swanson & Rajalahti, 2010; Davis, 2008). The shift opened the door for multiple actors to provide extension services, including government, non-governmental organizations, and the private sector (Okorley et al. 2010), and actively engage the target community in the knowledge creation process (Wellard et al. 2013).

Accordingly, the shift towards pluralism and community-based approaches prompted the emergence of the Agricultural Knowledge Innovation Systems (AKIS) model, which emphasized the collaboration among farmers, researchers, and extensionists in identifying farmers' challenges and possible solutions (Klerkx et al. 2012; Swanson & Rajalahti, 2010). However, in a recent shift toward even greater bottom-up innovation and knowledge creation, the AKIS has been widely replaced by the Agriculture Innovation Systems (AIS) model. AIS focuses on the participatory engagement of different agricultural actors in brokering innovations responsive to community needs through the creation of enabling environments (World Bank, 2012; Klerkx et al. 2012). According to Kuhlmann (2014), an enabling environment is achieved through value chain development that facilitates sustainable linkages and relationships between farmers, input providers, and markets. Given the trends in the evolution of extension services, the farmer-to-farmer model emerged to address the

challenges constraining the provision of public extension systems including accessibility, reliability, sustainability, affordability, and inadequate community adoption (Kudhlande et al. 2014).

The Farmer-to-Farmer Model

The farmer-to-farmer (F2F) model commonly operates under an AIS framework (Birner et al., 2009) and is predicated on leveraging the benefits of social networks to enhance farmers' self-efficacy (Kondylis et al. 2017). The F2F model's providers/actors are widely labeled using different terms such as lead farmers, farmer promoters, farmer trainers, contact farmers, and model farmers (Kudhlande et al. 2014, Simpson et al. 2015; Ragasa, 2020). This article used the term lead farmer (LF) with reference to the peer extension provider and F2F to describe the extension model. Selener et al. (1997) defined *lead farmers* as individuals with little or no formal education who, through a process of training, experimentation, learning, and practice, increase their knowledge and become capable of sharing it with others, functioning as extension workers. The F2F extension model is a localized and peer-to-peer extension system that should not be mistaken with the F2F international development program, funded by the United States Agency for International Development, which promotes cross-cultural learning exchange.

The F2F extension model utilizes techniques such as field visits, exchange tours, and field demonstrations for knowledge dissemination (Kudhlande et al. 2014; Karubanga et al, 2017). Documented benefits of these techniques include improved affordability, convenience, and accessibility to clientele, as well as replicability potential (Franzel et al., 2019; Kiptot et al., 2016). F2F extension may also increase proximity and accessibility to the extension source (Oyalemi et al., 2018). Lead farmers typically reside within the community, speak the same language as the community, and understand the community beliefs, attitudes, and culture, compared to government extension agents who may be perceived as "outsiders" (Khaila et al. 2015; Salem & Haug, 2020).

Withstanding the proliferation of the F2F model and its potential in enhancing extension outreach, research indicated limited behavior changes and technology adoption among the targeted clientele (Franzel et al. 2014; Holden et al. 2018; Salem & Haugh, 2020). Moreover, literature confirmed numerous challenges associated with the F2F model such as lead farmer underperformance, behavioral issues including an unwillingness to share information with the community, high lead farmer attrition rates, and high expectations of financial and material compensation by both lead farmers and the community (Franzel et al., 2014; Amudavi et al. 2009; Simpson et al. 2015; Holden et al. 2018). Cumulatively, these issues have reduced the effectiveness of the F2F model in enhancing farmer self-efficacy for innovation (Salem & Haug, 2020).

Although previous research has extensively focused on understanding the different facets of the F2F model including effectiveness, selection, and motivation (Kiptot et al. 2016; Holden et al, 2018; Feder et al. 2010), the role of the lead farmer selection and its implications on community relations and quality of extension provision is not clearly understood. This prompts the question, to what extent is the community involved in lead farmer selection, and how does that process affect the relationship between lead farmers and the community for social learning? Therefore, this study sought to understand the role of lead farmer selection in enhancing the effectiveness of the F2F model as a viable opportunity for grassroots and farmer-led extension systems grounded on need, innovation, and experimentation.

Conceptual Framework

This literature review was guided by several concepts and theories of social learning and the diffusion of innovations to explain how leader farmer selection may influence community receptiveness and relations with peer-to-peer extension (i.e., Bandura, 1978; Freire, 1996; Purkey & Novak, 1984; Rogers, 2003). The F2F model embeds the principles of social learning, which are theorized as individuals learning via their environment or social interaction through observation, imitation, and experiential knowledge creation (Bandura, 1978). The F2F model leverages the benefits of interpersonal relationships and social networks through the assumption that farmers' exposure to lead farmers and their demonstrations of practices (i.e., a plot with improved cultivars for others to observe) will encourage wider adoption in the community (Kondylis et al. 2017; Rogers, 2003). Research in the agricultural context encourages these methods, indicating that farmers access information and learn best from their close peers and social networks (Feder & Anderson, 2004).

Expanding upon the above concepts, this study adopts Purkey & Novak's (1984) Invitational Theory as a framework to explain the impact of community participation in the selection of lead farmers within the F2F. The invitational theory is grounded on the foundations of democratic ethos, perceptual traditions, and self-concept (Purkey & Novak, 1984). The theory asserts learning is a collaborative process obtainable through places, policies, programs, and processes specifically designed to invite learning by valuing people and their untapped potentials (Purkey & Novak, 1984). Consequently, learning occurs when a perceived strong will of care, trust, respect, and optimism exists between the learner and the teacher (Combs & Gonzales, 1994). For example, in the case of the F2F model, this involves farmers engaging in experimental or demonstration plots learning with lead farmers not because they are forced to, but because of their interest and motivation to do so.

The invitational theory asserts that people are not influenced by events as much as by their perceptions of events (Purkey & Novak, 1984). The selection of lead farmers within the community is an event, a process, and a product in making. The community may perceive lead farmer selection as a critical step to their engagement with lead farmers. Besides, diffusion of innovations and social learning occurs when certain pre-conditions are in place to create an enabling environment (Rogers, 2003). Such preconditions may entail relationship-building, trust, and active community engagement at all levels (Brody et al. 2003). Similarly, the F2F system needs to employ participatory selection, motivation, mentoring, and monitoring of lead farmers as the necessary groundwork for determining the pace of diffusion of innovations (Kondylis et al. 2017).

Furthermore, the Invitational theory postulates that learning hinges greatly on the environment in which it occurs by addressing the expectations of learners. As stated by Leonard (1997), “the satisfaction of human beings in their social associations depends on the expectations they bring with them as well as on the actual benefit they receive in them” (p. 89). Extension education is a social learning process requiring learners and teachers to cooperate and co-create a good and inviting learning environment by harmonizing the social context, behavior, and beliefs of the teacher and student (Leonard, 1997). Any iota of incongruency in thinking and perception between the teacher and student could hinder learning (Könings et al.,2014). These concepts parallel Freire (1996) who encourages educators to level with their students as co-learners. Rather than pushing down ideas and information on the learners (Freire calls this *banking*), the educator should encourage *dialogue* between the learners aiming to challenge their current perceptions of their worlds and situations and potentially shift toward desirable behaviors.

Purpose and Objectives

The purpose of this study was to understand lead farmer selection processes and criteria within the farmer-to-farmer extension model and their impact on community social learning.

The specific objectives to achieve this purpose were to:

1. Describe the process for selecting lead farmers.
2. Determine what types of lead farmers are typically selected.
3. Illustrate the potential implications these types of leaders have on social learning.

Methodology

We applied Torracco's (2005) integrative literature review method to structure and guide our synthesis and discussion around community perceptions of leader farmer selection processes and implications on community social learning within the farmer-to-farmer extension model. According to Torracco (2005), an integrative literature review aims at understanding a subject by reviewing, critiquing, and synthesizing existing literature to develop new ways of thinking, concepts, and frameworks. Although researchers organize integrative reviews in various ways according to context and need, adherence to this method requires applying standardized conventions for reporting how each reviewed study was conducted (Torraco, 2005). These conventions refer to how an author identifies, analyzes, synthesizes, and reports findings from the literature. Torracco's method was used for this study because of the detailed guidance it provides in the identification, organization, analysis, and synthesis of literature resources.

The data collection was conducted in three stages. First, we performed a search for literature from established online library databases and indexing search engines including EBSCO host, JSTOR, Google Scholar, ProQuest, and the University digital library archives as our primary search outlets. Several key search terms were used in the search engines separately and in combination including *lead farmer selection*, *community perception*, *peer-to-peer extension*, *F2F*, *social learning*, and *extension effectiveness*. We then combined these keywords into a complete search term string using the Boolean operators "OR" and "AND" while utilizing synonyms of the same words or different keywords. The search string was then entered into different databases identified above to retrieve data. The criteria used for article inclusion were (i) articles directly on farmer-to-farmer extension systems and/ or community social learning, and (ii) articles in peer-reviewed journals. The initial screening resulted in more than 100 articles, from which we selected the articles that met the criteria established above. All papers were screened by reading titles, abstracts, and conclusions.

In the second stage, we generated additional resources primarily by finding relevant research, authors, and journals from the reference lists of preceding articles. A total of 47 resources were included in the study that directly or tangentially addressed farmer-to-farmer or community social learning. In addition, non-scientific articles including reports, working papers, and policy papers were used to buttress the arguments of the paper. Throughout this process, we created a spreadsheet database with structured fields for the topic, target audience, country or region of study, methods used, research questions posed, findings, and recommendations of the different studies. This categorization process allowed us to create and synthesize new knowledge more effectively (Torraco, 2005). In the third and final stage, we compiled and conducted a full-

text review of those resources ($n=20$) that addressed (directly or tangentially) lead farmer selection criteria and community social learning. We then coded data thematically based on F2F extension systems, lead farmer selection criteria, and community social learning.

Literature Review

Evidence suggests lead farmer selection is often not executed in a participatory way. Numerous studies (Salem & Haug, 2020; Franzel et al. 2014; Kawash, 2009; Oyalemi et al. 2018) have uncovered potential implications of lead farmer selection occurring via a process led by funding organizations, a combination of funding organizations and the community, or wholly by the community.

Salem & Haugh (2020) examined the implementation and effects of the F2F extension model in Ethiopia. The study found F2F model may be effective in providing extension services though often been marred by several challenges. First, lead farmer selection was often top-down and non-participatory, whereby village elders and government extension agents selected the lead farmers. Selection criteria, in this study, included (i) perceived adoption of agricultural best practices (ii) information sharing skills (iii) being in sync with the community needs and cultures (iv) good behaviors (v) hard work and loyalty. Besides, lead farmers were selected based on political party affiliations and allegiance rather than through inclusive processes, as farmers with dissenting opinions against the ruling government were excluded despite meeting other selection criteria (Salem & Haug, 2020). Additionally, the community perceived lead farmers negatively as corrupt, government spies, propagandists, and a patronizing tool for hoarding information from the community (Salem & Haug, 2020; Ragasa 2020). Consequently, this process may have resulted in the selected lead farmers being wealthier, of higher status, well-connected in the community, and much older than local average farmers.

Kawash (2009) investigated lead farmers' motivations for volunteering in Malawi and found both the community and the funding organizations participated in lead farmer selection. Lead farmer selection criteria included the ability to read and write, willingness to share knowledge with the rest of the community and being a member of the National Smallholder Farmers' Association of Malawi (NASFAM) cooperative. Similar findings were echoed by Kundhlande et al. (2014) who evaluated LF effectiveness in Malawi from the perspectives of extension actors using the F2F model. The study noted funding organizations together with the community selected LF based on literacy, residence within the community, communication ability, work ethic, good reputation, innovativeness, and availability (Oyalemi et al. 2018; Lukuyu et al. 2012; Amudavi et al. 2009). Overall, the selected lead farmers tended to be the same age as the followers,

somewhat better educated, same wealth level, and opinion leaders holding other leadership roles in the community (Kundhlande et al., 2014). Such lead farmer selection criteria resulted in 32 percent of the organizations interviewed noted to have replaced their lead farmers due to underperformance, lack of motivation, and withdrawal (Kundhlande et al. 2014; Amudavi et al. 2009). Whereas lead farmer replacement could be explained from different perspectives, the selection of uninterested and unmotivated lead farmers might explain their dismal performance and high turnover (Kundhlande et al. 2014; Ragasa, 2020; Oyalemi et al. 2018).

Franzel et al. (2014), evaluated the perspectives of 30 organizations using the F2F model and concluded lead farmer selection included two alternatives: (1) The community chooses lead farmers based on criteria dictated by the funding organization; and 2) 10 % of the organizations chose lead farmers without any levels of community engagement. The study noted lead farmer selection criteria were availability, accessibility, trainability, acceptability, and communication ability. Other criteria included literacy, expertise, and passion for serving the community (Franzel et al. 2013; Amudavi et al.2009). Additionally, 80% of lead farmers were re-engaged or concurrently serving more than the organization. However, the community had no voice and input in the selection of re-engaged lead farmers. Although the study did not directly explore the impacts of the lead farmer selection process on community relational perceptions, this aspect could be inferred from the challenges lead farmers faced disseminating new technologies including limited community adoption and the perception of lead farmers possess inadequate farming skills.

Khaila et al. (2015) conducted a study in Malawi to understand the lead farmer approach from the perspectives of the lead farmers. Lead farmer selection criteria included hardworking, active farmers, and interest in helping others. The study indicated that 75% of lead farmers were selected by the community or community groups, 17 % selected by extension staff, and 8 % by “other” means. The study failed to clarify what other means were and who made significant decisions. Furthermore, the study found that 16% of lead farmers selected had served in other organizations while 22% were concurrently serving more than one organization. Kiptot et al. (2016) echoed similar findings and noted lead farmer selection involved a participatory process among dairy management groups, community producers, and project facilitators. However, the selection criteria were based on the ability to read and write, membership in a farmer cooperative, residence within the community, owning and willingness to spare land for demonstrations, and willingness to train the community without pay (Oyalemi et al 2018; Franzel et al.2019; Lukuyu et al. 2012).

Contrarily, funding organizations also engage in inviting strategies in the lead farmer selection process. For instance, in efforts to promote egalitarianism in

the provision and access to extension services, many implementors of the lead farmer extension model have attempted to address gender inclusivity. Simpson et al. (2015) conducted a study evaluating the effectiveness of the lead farmer approach in promoting women's participation in Malawi, Kenya, and Cameroon through the perspectives of the managers of organizations using the F2F model. Although the study concluded that organizations using the lead farmer model accounted for gender by allocating 30% of the positions to women, it did not explicitly explain how the 30% allocated for women was distributed and whether there was any community involvement. The study concluded that women lead farmers acting as paraprofessionals increased from 33% to 44% and from 28% to 30% in the national government in Kenya and Cameroon respectively. However, there were few observable differences in women paraprofessionals attributed to the gender-affirmative action in Malawi. The table below illustrates some of the lead farmer selection criteria and processes from the literature.

Table 1*Illustrates some examples of different Lead farmer selection processes*

Author	Country focus	LF Selection Methods	LF selection Criteria
Salem & Haugh (2020)	Ethiopia	<ul style="list-style-type: none"> ○ Top-down LF selection. ○ Village elders and government extension agents select LF. 	Hardworking, political party loyalty, Adoption of best practices and improved agricultural productivity, information sharing skills, being in sync with the community needs and cultures, and good behaviors.
Franzel et al. 2014	Malawi	<ul style="list-style-type: none"> ○ Funding organization choosing LF (10%). ○ The community chooses LF based on laid-out criteria. ○ Funding organization and Community choosing LF-organization propose names and community chooses or gives out criteria and community proposes names (47%) 	Availability, accessibility, trainability, acceptability, communication ability, literacy, expertise, and passion.
Khaila et al. 2015	Malawi	<ul style="list-style-type: none"> ○ 75% are selected by the community/groups. ○ 17% by extension staff and ○ 8% by “other means” 	Hardworking, active farmer, interested in helping others.
Kundhlande et al. 2014	Malawi	<ul style="list-style-type: none"> ○ Selection varies sometimes organizations select LF or work together with the community to select LF. 	Hard worker, literacy, residence, communication ability, good reputation, innovativeness, and availability.

Table 1 (continued).

Simpson et al. 2015	Cameroon, Kenya, and Malawi	<ul style="list-style-type: none"> ○ Farmer groups and cooperatives selected 47% while local leaders 60% respectively ○ Organizations provided selection criteria while the community nominate candidates and the organization conducts interviews- ○ Organizations mandate a certain percentage of women nominated-in Kenya and Malawi-30% 	Hardworking, Communication ability, literacy, good behavior, residence, availability, teachability and farming expertise, trustworthy, acceptable to community, good track record, and innovative.
Wellard et al. 2013	Uganda, Malawi, and Ghana	<ul style="list-style-type: none"> ○ Community members and extension staff establish selection criteria. ○ Program or partner field staff facilitate LF selection through village meetings while the community elects LF candidates. 	Hard work, Commitment to development, Volunteering spirit, Honesty, Approachability, Respect, Patience, Leadership, mobilization, and organizational skills.
Kiptot et al. (2016)	Kenya, Uganda, and Rwanda.	<ul style="list-style-type: none"> ○ The participatory selection process involves dairy management groups, project dissemination facilitators, and producer organizations. 	Being a dairy farmer, ability to read and write, ability to interpret extension materials and innovations to farmers without pay, membership in a farmer organization or cooperative society working with EADD project, resident within the community, and land ownership for demonstrations.

Table 1 (continued).

Oyelami et al. (2018)	Nigeria	<ul style="list-style-type: none"> ○ A participatory approach whereby the farmer group members themselves select lead farmers to represent them. 	A residence within the community, membership of a group, owning a farm and willingness to adopt and practice disseminated technology in front of others, ability to read and write, honesty, Innovativeness, good leadership qualities, good communication skills, financial strength, and mental alertness.
Kawash (2009)	Malawi	<ul style="list-style-type: none"> ○ Both the community and the funding organizations participated in lead farmer selection. 	Ability to read and write, willingness to share knowledge with the rest of the community, and being a member of a cooperative society.

Discussion and Conclusion

This study reviewed the literature on the lead farmer selection approaches and their consequences on community social learning. Increasingly diverse needs of the smallholder farming communities and constraints often linked to the public, centralized, private sector and other extension models underpin the need for more participatory and community-centric extension systems such as F2F. Evidence indicates the F2F model has significant potential to expand access and utilization of extension education for rural farmers by filling gaps where mainstream agriculture extension faces many challenges (Ragasa, 2020; Salem & Haugh, 2020). Nonetheless, challenges persist in the implementation of F2F for social learning. Below are the main lessons and knowledge gaps identified from the F2F review.

Lead farmer selection processes varied across studies providing insights on community involvement in selecting LFs, the use of predetermined criteria for selecting LF, and the role of the funding organization in choosing lead farmers. Studies highlighted lead farmer socio-economic characteristics like age, gender, social status, education level, innovativeness, personality, and leadership abilities, as crucial for effective engagement with the community (Holden et al. 2018; Franzel et al. 2014). However, overemphasis on such selection criteria commonly resulted in the selection of wealthy and well-connected farmers as lead farmers

due to their perceived social networks, innovation, and risk-taking abilities. When the core selection criteria are based on resource availability like land access, wealth status, or even cooperative membership, agile and ambitious women and youth are excluded from participating as lead farmers due to their limited resources. Besides, cooperatives often exclude the poorest perceived as unable to buy shares or contribute in any meaningful ways (World Bank, 2008; Bijman & Wijers, 2018).

Heemskerk & Wennink (2004) echoed similar findings that despite extension shift towards community-centric and participatory models like F2F, there is a natural bias towards working with powerful, well-connected, and wealthy farmers perceived to be risk-takers and innovators. While risk-taking, innovative abilities, and social networks are crucial in social learning, they should not be the only foundational criteria for selecting lead farmers as they are universal end-goals achievable with access to adequate resources. All farmers (both poor and wealthy) experiment and innovate albeit at different scales (Salem & Haugh, 2020; Franzel & Wambugu, 2007). Whereas wealthy farmers have more resources for experimentation coupled with strong external linkages and networks for information access, this does not necessarily translate to information-sharing abilities. The information seeking and sharing abilities of people are influenced by numerous factors including socio-economic characteristics like age and wealth status, which ordinarily dictate the social cycles and community interactions of individuals (Salem & Haugh, 2020). However, diffusion of innovations and social learning tends to occur effectively among people with similar economic and social characteristics through social interactions (Rogers, 2003). Farmers gather and trust information from their closest peers and people with similar characteristics (Feder & Anderson, 2004). Thus, selecting lead farmers of higher or lower wealth than the rest of the community disinvents social learning by reducing community interactions which underpin social learning within the F2F model.

Accordingly, diversifying lead farmer selection criteria beyond farming expertise and resource endowments to include personal and professional attributes such as credibility, trust, communication, and cooperation abilities is pivotal for engendering social learning. Lead farmers wear different hats in the community functioning as a resource and people mobilizers, teachers, evaluators, motivators, and a bridge linking the community to other stakeholders (Wellard et al. 2013). In this regard, extension programs that utilize a combination of farming expertise, dissemination skills, and people skills as a criterion for lead farmer selection, are more effective in selecting diverse pools of lead farmers including young people, women, and other vulnerable groups (Franzel et al. 2013; Amudavi et al. 2009; Franzel & Wambugu, 2007). Therefore, the lead farmer selection process should

encompass a multifaceted approach beyond technical expertise, wealth, and innovation to include personal and professional attributes.

The Role of Dialogue in Lead Farmer (Re)-Engagement

Farmer-to-Farmer extension models are predicated on voluntary approaches, and lead farmer motivations for volunteering range from seeking social networking opportunities, generation of income, access to new technologies, job-related benefits, social status, and altruism (Kudhlande et al. 2014; Ragasa, 2020; Simpson et al. 2015). However, the termination of some lead farmers for hoarding information from the community or due to behavioral issues illuminates the mismatch between perceived motivations for lead farmers volunteering vis-à-vis the real motivations for volunteering. Lead farmer motivations or intentions could determine their actions, attitudes, and approaches in engaging with the community. For instance, the approach of an altruistic lead farmer committed to changing his/her community differs from a lead farmer interested in job-related benefits such as per diem. This reinforces the need for establishing accountability and feedback systems between lead farmers, community, and funding organizations (Franzel et al. 2014; Salem & Haugh, 2020). Establishing open communications and feedback loops with the target community is crucial to uncovering lead farmers' motivations for volunteering.

Accordingly, extension actors utilizing the F2F model should take a bottom-up approach in establishing lead farmer motivations for volunteering before engagement or re-engagement. While it might be challenging for outsiders like non-governmental extension actors to decipher the lead farmers' motivations for volunteering, developing relationships with the target community creates an enabling environment for dialogue. Communities have a better understanding of their people and can select a lead farmer who is socially, culturally, politically, and economically in sync with the community (Oyelami et al., 2018). A community-selected lead farmer might have better foresight, listening capabilities, compassion, and flexibility to adapt to emerging challenges and serve diverse clientele compared to funding organization's selected lead farmers (Franzel et al., 2014). Besides, conducting a community needs assessment, performance appraisal, and monitoring and evaluation of the lead farmer performance, could provide metrics for gauging lead farmer efficiency and relationship with the community before re-engagement in similar projects.

Although lead farmers can be engaged or re-engaged in multiple organizations and projects due to their expertise and connections, community involvement in the process is vital. Some lead farmers are re-engaged not because of their effectiveness in reaching the target audience but because of their social connections or political allegiance and party affiliations (Salem & Haugh, 2020). The politicization of the F2F model may be disinviting to learning as communities

consist of different political continuums, which could threaten the relationships and trust necessary for social learning (Combs & Gonzales, 1994). The negative practices of lead farmer re-engagement without community consultation or dialogue elicited hatred and sentiments like some lead farmers had already eaten enough and it was time for someone else to eat (Ragasa, 2020). Such statements disinvite social learning with several implications. First, the community perceived donor funding and lead farmer engagement as an opportunity to be provided for rather than a learning opportunity; (ii) the community perceived lead farmers, not as peers but as outsiders with many connections consistently taking advantage of opportunities that could be pursued by the community (Ragasa, 2020; Salem & Haugh, 2020). In other words, lack of community inclusion underscores the resentful relationship between the community and lead farmers, subsequently hindering community social learning.

The social learning process engages all and invites learners and teachers to harmonize their differences and together forge a learning environment anchored on well-established relationships and trust (Könings et al. 2014). Having a democratic dialogue with the community in addressing matters affecting them is critical for social learning within the F2F model. The distrust accelerated by backdoor reengagement of lead farmers reduces existing social capital in the community. Community social capital is significant for both lead farmers and the community as it influences access to credit, information, and markets (Heemskerk & Wennink, 2004). Therefore, extension actors utilizing peer learning models such as F2F should intentionally invite community learning through policies, processes, and programs meeting the needs of the target population at their respective places. The community's perception of respect for their culture, local knowledge, and autonomy in lead farmer selection would likely enhance their trust in the relationship with ripple effects on social learning for technology adoption.

Relationship Building and Community Participation

Developing lasting relationships with stakeholders while managing community expectations forms a critical component of community-based projects such as the F2F. Although elements of community engagement exist in the lead farmer selection such as the involvement of the village elders (Salem & Haug, 2020; Franzel et al. 2014; Simpson et al. 2015). This does not necessarily suffice as an inclusive process due to limited inputs from the rest of the community. We argue there is a need to engage the community continuously and fully in the entire F2F value chain including the design, implementation, and evaluation of lead farmer performance (Franzel et al. 2019). Community participation should be deeply entrenched in the F2F system and not a mere lip service as Franzel et al. (2014) noted that the community appeared to have participated in the selection.

The process of engaging the community should be inviting to develop relationships that seek to address the expectations of the community. As stated by Leonard (1997), “the satisfaction of human beings in their social associations depends on the expectations they bring with them as well as on the actual benefit they receive in them” (p. 89). For instance, some communities expect material or financial rewards for engaging and participating in donor-funded projects (Ragasa, 2020). However, failure to clarify and demystify such myths, misconceptions, and expectations through honest communication, could cause apathy when such expectations are unmet. Therefore, extension actors should engage the community at all levels.

Furthermore, meaningful engagement and connections with the community require an attitude of ‘do it with the people’ which entails doing things with the people rather than for them (Anderson & McFarlane, 2010). To serve diverse farmers, extension systems should adopt and streamline servant leadership (Greenleaf, 1977) as the dominant leadership paradigm within peer-to-peer learning. Servant leaders are compassionate, promote cooperation, seek opportunities to support and grow others, have foresight, and listen while being steadfast as community leaders (Greenleaf, 1977). Like servant leaders, empowering extension services gives the community a voice, resources, and the know-how to make their own decisions. Similarly, the F2F extension model should move beyond developing and disseminating new technologies to enhancing farmers’ self-efficacy to select their leaders, innovate, and respond to emergent circumstances such as climate change (Tizikara & Kwesiga, 2006). As (Birner et al. 2009) suggested, the new extensionists should facilitate knowledge acquisition through the enhancement of farmers’ self-efficacy for innovations.

However, the continuous scaffolding and decision of sponsoring organizations to unilaterally spearhead the selection of lead farmers, a process that should otherwise be participatory contravene the principles of social learning and invitational theory. Lack of community engagement in the lead farmer selection process undermines the notion of people’s ability, value, and untapped potential in forging their pathways (Purkey & Novak, 1984; Ragasa, 2020). According to the Invitational theory, learning occurs through designing processes, policies, and programs that invite teachers and learners to co-create knowledge. People have basic psychological needs for autonomy and competence that extension actors should capitalize on and further enhance (Ryan & Deci, 2000b). The failure of sponsoring organizations to fully engage the community breeds mistrust and poor relationships between lead farmers and the community which manifested as envy, jealousy, disrespect, and lack of cooperation from the community in adopting lead farmer disseminated technologies (Kundhlande et al., 2014; Khailia et al. 2015; Ragasa, 2020; Salem & Haugh, 2020; Holden et al. 2018).

Trust underpins all community social exchanges and lack of it causes resistance from the community. Community limited adoption of LF disseminated technologies is a quid pro quo reaction to their lack of involvement in lead farmer selection. Learners cannot adopt practices when holding negative perceptions toward the teacher (Combs & Gonzales, 1994). Furthermore, when the people are involved in the selection process of their leaders, they are less likely to question the credibility, earnings, or even exude envy towards those leaders. Instead, the community works as a team together with their selected or elected leaders to build the relationships necessary to achieve the long-term goals of the F2F model (Ofuoku & Agbamu, 2013; Wellard et al. 2013).

The Role of *Place* in Social Learning

Experiential learning and observation which are key tenets of social learning require community role models. Social learning is embedded in observation, role-modeling, bridging, and linking that occurs between lead farmers and the community and its consequences on social learning. Community perception of lead farmers' behavior influences the level of community trust in the lead farmer's disseminated technologies and their adoption (Salem & Haug, 2020). If the community has a negative perception of the lead farmer adoption behaviors, for instance, they have no demonstration farms and have not adopted technologies, this could have spiral effects on the adoption behaviors of the community. Holden et al. (2018) observed similar findings that lack of, or limited lead farmer adoption of disseminated technologies influenced the level of community adoption of such technologies. Essentially, the lead farmers' decision to adopt corroborates not only the viability of the technology but its contextuality in meeting the needs of the farming communities at a particular place (Ragasa, 2020). Farmers might question the suitability of a particular technology such as the adoption of hybrid seeds in their locality (place), based solely on observing the behaviors of lead farmers disseminating that particular technology. Therefore, it is imperative to have role-model lead farmers who are trusted and accessible to the community.

Furthermore, the main constraint to the adoption of technology is the failure to recognize and translate the associated benefits of the technology by individuals in particular contexts or places (Kondylis et al., 2017). More often, people evaluate the usefulness and the relevance of technology, or an idea based on the source. Perceived information relevance depends on the proximity to the source of information in terms of where and how that information is acquired. The community must easily identify and connect with lead farmers as peers with similar social status within their places of interaction. Poor community members become less receptive to training and technologies disseminated by wealthier lead farmers and vice versa, due to a lack of commonality in their relationships and

their places of interaction (Feder & Anderson, 2004; Rogers, 2003; Kondylis et al. 2017). Consequently, extension actors should design, and implement programs that capitalize on the role of places of social interactions as fertile grounds for social learning. Achieving the role of *place* in social learning involves understanding the socio-economic and political similarities and differences of the community, in terms of where and how they acquire information, while identifying the best ways to meet their diverse needs.

Study Implications and Recommendations

This literature review highlighted the role of lead farmer selection processes on community social learning within the F2F model. The effectiveness of community learning approaches such as the F2F model, calls for concerted efforts from practitioners to foster collaboration with the target community by developing trust, empathy, intentionality, and showing optimism in the capabilities of the target communities. Fundamentally, funding organizations using the F2F approach should be inviting to the community to learn, through respect for their culture, knowledge, and contributions in the lead farmer selection processes which in turn catalyzes authentic relationships (Purkey & Novak, 1984; Combs & Gonzales, 1994). Extension actors using the F2F model should adopt and utilize approaches that are inviting to social learning such as participatory selection of lead farmers, enhancement of farmers' self-efficacy for innovations, and the diversification of lead farmer selection criteria to include gender equality as a critical lens for knowledge transmission. The diversification in requirements for lead farmer selection could engender the selection of lead farmers with the right skills, attitudes, and motivations to transform the community. This could have ripple effects on increasing extension outreach among marginalized households thereby increasing household equality, innovations, and food security for sustainable development.

At the same time, achieving sustainable and inclusive community transformation entails designing extension systems that leverage the intricacies of *policies, programs, people, processes, and places* (Purkey & Novak, 1984). In other words, the institutionalization of the F2F extension model should be inviting to the target community in all dimensions by engaging honest and committed people as lead farmers while working concurrently with the community to monitor and evaluate the performance of a lead farmer. Similarly, extension actors should organize meaningful and inclusive programs through participatory processes that seek to understand the needs of the people through dialogue. The open dialogue could potentially spur innovations among the target community when organized and implemented intentionally through a participatory process. The participatory processes should aim to meet the people in their right social, cultural, economic, and political places of interaction. To achieve

transformational lead farmer engagement, extension actors should adopt tenets of Servant leadership (Greenleaf, 1977) as the dominant leadership paradigm for peer-to-peer learning such as F2F. Adopting servant leadership as a criterion for lead farmer selection could facilitate the sieving and selection of only servant leaders willing and able to serve the community. Servant leaders in this connotation refer to individuals with the ability to listen intuitively to the community, understand the needs of the community, develop, and maintain a vision for and with the community, and persuade others towards that vision. Selecting servant leaders as lead farmers demands the establishment of relationships between the community and extension actors anchored on the principles of equality, care, trust, respect, and intentionality for impactful change.

In addition, the success of extension efforts depends on the complementarity of policies on the recruitment, training, mentoring, and evaluation of performance. In this regard, extension actors should develop and implement policies around the engagement and re-engagement of lead farmers in projects. Lead farmer (re)-engagement involves doing a community needs assessment, pre-and post-assessment of lead farmer performance, and intermittent monitoring and evaluation of the personal and professional Invitational Index of the lead farmer. As Kaufman and Keller (1994) noted, assessing learners' satisfaction, relevance, knowledge, skills, and attitudes toward training are fundamental to establishing the effectiveness of training. Moreover, the assessment of learners is also necessary to predict the transferability of learning and gauge the overall disposition of the community in terms of improved agricultural productivity and living standards before and after the training. Similarly, the effectiveness of F2F extension systems and lead farmers, in particular, should be assessed to understand the community satisfaction with the services provided by the lead farmers as a ground for (re)-engaging lead farmers in similar projects or other non-governmental organizations.

Nevertheless, the proliferation of peer-to-peer extension systems like F2F and Farmer Field Schools (FFS) in the public extension realms, provides the impetus to re-evaluate factors determining the success of such extension systems. In this regard, future research is necessary to disentangle factors impeding the efficiency, effectiveness, and sustainability of F2F. In this light, further research is needed to better understand the impacts of community perception of lead farmer selection processes on social learning. Since policies, programs, processes, places, and the people in F2F work in tandem to determine community social learning, further research should evaluate how individually or cumulatively these different aspects affect the provision of extension and community social learning. For instance, the research could focus on understanding the role of person and place in social learning within F2F, by seeking to understand whether a lead farmer could be successful in a different location outside their residents.

Additionally, further research is necessary to understand lead farmers' motivations for serving the community and whether material or financial rewards could be more desirable to motivate lead farmers to continue being effective. Besides, further research should explore whether lead farmers' socio-economic characteristics and self-concepts or identities have any influences on their self-efficacy and effectiveness as extension actors. More research is also necessary to understand how lead farmer expectations determine their engagement with the community and the impact on social learning and whether lead farmers' socioeconomic characteristics like gender determine their effectiveness. In the same vein, further research should explore the community's perception of lead farmers serving multiple groups and organizations and how it impacts community social learning, and the effectiveness of lead farmers serving multiple organizations or groups concurrently.

This paper provides insights and examples to support practitioners and researchers to better design, implement, and evaluate F2F approaches through a better understanding of the role of community perceptions in lead farmer selection processes. The article highlighted several frontiers through which extension actors within the F2F could personally or professionally invite or disinvite community social learning. Ultimately, community social learning is engendered by a combination of people, policies, processes, and programs that recognize the role of place in society. In general, the article reiterated the need for participatory selection of lead farmers and the need for establishing an inviting attitude predicated on equality, trust, and respect of the community as a foundation for social learning. The AIS model further buttresses the need for collaboration in creating an enabling environment for innovation. Promoting collaborations and innovations begins with building farmers' self-efficacy which hinges greatly on the involvement of farmers at all levels. Until extension actors intentionally engage their target communities in the identification, selection, monitoring, and evaluation of lead farmers, F2F will still face challenges disseminating new knowledge and technologies.

References

- Afful, D. B (2016). Public Extension Agents' Need for New Competencies: Evidence from A Climate Variability Study in Limpopo Province, South Africa. *S. Afr. J. Agric. Ext.*, Vol. 44, No. 2, 2016: 59 – 70 DOI: <http://dx.doi.org/10.17159/2413-3221/2016/v44n2a387>
- Amudavi, D. M., Khan, Z. R., Wanyama, J. M., Midega, C. A. O., Pittchar, J., Nyangau, I. M., & Pickett, J. A. (2009). Assessment of technical efficiency of farmer teachers in the uptake and dissemination of push-pull technology in Western Kenya. *Crop Protection*, 28(11), 987-996. <https://doi.org/10.1016/j.cropro.2009.04.010>
- Anderson, J.R and Feder, G. (2004). Agricultural Extension: Good Intentions and Hard Realities. *The World Bank Research Observer*, Vol. 19, no. 1. Pages 41–60, <https://doi.org/10.1093/wbro/lkh013>
- Anderson, J.R. (1998). Selected policy issues in international agricultural research: on striving for international public goods in an era of donor fatigue. *World Development*, 26 (6) (1998), pp. 149-1162 [https://doi.org/10.1016/S0305-750X\(98\)00035-7](https://doi.org/10.1016/S0305-750X(98)00035-7)
- Anderson, E., and McFarlane, J. (2010). *Community as Partner: Theory and Practice in Nursing* (6th ed). New York: Lippincott Williams & Wilkins.
- Bandura, A. (1978). Reflections on self-efficacy. *Advances in behavior research and therapy*, 1(4), 237-269. [https://doi.org/10.1016/0146-6402\(78\)90012-7](https://doi.org/10.1016/0146-6402(78)90012-7)
- Bijman, J., and Wijers, G. (2019). Exploring the inclusiveness of producer cooperatives, *Current Opinion in Environmental Sustainability*, Volume 41, Pages 74-79, ISSN 1877-3435, <https://doi.org/10.1016/j.cosust.2019.11.005>
- Birner, R., Davis, K.E., Pender, J. Nkonya, E., Anandajayasekeram, P., Ekboir, J., Mbabu, A., Spielman, D.J., Horna, D., Benin, S. & Cohen, M. (2009). From best practice to best fit: a framework for designing and analyzing pluralistic agricultural advisory services worldwide. *Journal of Agricultural Education and Extension*, 15(4): 341-55. <https://doi.org/10.1080/13892240903309595>
- Brody, S.D., Godschalk, D.R., & Burby, R.J., (2003). Mandating citizen participation in plan making: six strategic planning choices, *Journal of the American Planning Association*, Vol. 69 i3 p 245 (20), 2003. <https://doi.org/10.1080/01944360308978018>
- Combs, A. W., and Gonzalez, D.M. (1994). *Helping Relationships: Basic Concepts for the Helping Professions* (4th Edition). Boston: Allyn and Bacon.

- Davis, K. (2008). Extension in Sub-Saharan Africa: Overview and assessment of past and current models, and future prospects. *The Journal of Agricultural Education and Extension*, 15(3), 14. [Extension in Sub-Saharan Africa: Overview and Assessment of Past and Current Models, and Future Prospects \(aiaee.org\)](https://doi.org/10.1080/1071427080230295018_12)
- Davis, K., S. C. Babu, and C. Ragasa. 2020. Agricultural Extension: Global Status and Performance in Selected Countries. Washington, DC: *International Food Policy Research Institute*. <https://doi.org/10.2499/9780896293755>
- FAO. 2017. The future of food and agriculture – Trends and challenges. Rome.
- Feder G., Anderson J.R., Birner R., Deininger K. (2010) Promises and Realities of Community-Based Agricultural Extension. In: Otsuka K., Kalirajan K. (eds) *Community, Market and State in Development*. Palgrave Macmillan, London. https://doi.org/10.1057/9780230295018_12
- Franzel S., Kiptot E., Degrande A. (2019) Farmer-To-Farmer Extension: A Low-Cost Approach for Promoting Climate-Smart Agriculture. In: Rosenstock T., Nowak A., Girvetz E. (eds) *The Climate-Smart Agriculture Papers*. Springer, Cham. https://doi.org/10.1007/978-3-319-92798-5_24
- Franzel, S., Sinja, J., Simpson, B. 2014. farmer-to-farmer extension in Kenya: the perspectives of organizations using the approach. ICRAF Working Paper No. 181. Nairobi, World Agroforestry Centre. DOI: <http://dx.doi.org/10.5716/WP14380.PDF>
- Franzel, S. & Wambugu, C. (2007). The uptake of fodder shrubs among smallholders in East Africa: Key elements that facilitate widespread adoption. In: Hare, M. and Wongpichet, K. (eds) *Forages: A pathway to prosperity for small scale farmers. Proceedings of an International Symposium, Ubon Ratchathani University, Thailand*. 203-222. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.260.907&rep=rep1&type=pdf>
- Franzel, S., Wambugu, C., Nanok, T. and Coe, R. (2013). The ‘model farmer’ extension approach revisited: Are expert farmers effective innovators and disseminators? In: CTA, *Proceedings of the Conference on Innovations in Extension, November 15-18, 2011, Nairobi, Kenya*. CTA, Wageningen, Netherlands. [CTA129 Changing Concepts and Functions to Empower Farmers_Franzel_04.pdf](https://www.cta.int/sites/default/files/publications/2013/CTA129_Changing_Concepts_and_Functions_to_Empower_Farmers_Franzel_04.pdf)
- Freire, P. (1974). *The Pedagogy of the Oppressed*. Harmondsworth: Penguin.
- Greenleaf, R. K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness*. New York: Paulist Press.
- Heemskerck, W. & Wennink, B. (2004) *Building Social Capital for Agricultural Innovation: Experiences with Farmer Groups in Sub-Saharan Africa*. Bulletin 368, Royal Tropical Institute (KIT). Amsterdam: KIT Publishers

- Holden, S. T., Fisher, M., Katengeza, S. P., Thierfelder, C. (2018). Can lead farmers reveal the adoption potential of conservation agriculture? The case of Malawi. <https://doi.org/10.1016/j.landusepol.2018.04.048>
- Kaufman, R. and Keller, J.M. 1994. Levels of Evaluation: Beyond Kirkpatrick. *Human Resources Development Quarterly*, 5(4): 371–380. <https://doi.org/10.1002/hrdq.3920050408>
- Kawash, K. 2009. Why volunteer? Peasant rationality re-examined: A study of what motivates farmers to volunteer in Malawi. Master Thesis. Lund University, Sweden. <http://lup.lub.lu.se/student-papers/record/1432297>
- Khaila S, Tchuwa F, Franzel S, Simpson S. 2015. The Farmer-to-Farmer Extension Approach in Malawi: A Survey of Lead Farmers. ICRAF Working Paper No. 189. Nairobi, World Agroforestry Centre. DOI: <http://dx.doi.org/10.5716/WP14200.PDF>
- Kiptot, E., Karuhanga, M., Nzigamasabo, P., and Franzel, S. (2006). Volunteer farmer-trainer motivations in East Africa: Practical implications for enhancing farmer-to-farmer extension. *International Journal of Agricultural Sustainability*. <http://dx.doi.org/10.1080/14735903.2015.1137685>
- Klerkx L., Schut M, Leuwis C, Kilelu C. (2012) Advances in knowledge brokering in the agricultural sector: towards innovation system facilitation. *IDS Bull* 43:53–60. <https://doi.org/10.1111/j.1759-5436.2012.00363.x>
- Könings, K.D., Seidel, T., Brand-Gruwel, S. *et al.* (2014) Differences between students' and teachers' perceptions of education: profiles to describe congruence and friction. *Instr Sci* 42, 11–30 <https://doi.org/10.1007/s11251-013-9294-1>
- Kondylis, Florence, Valerie Mueller, Jessica Zhu (2017). Seeing is believing? Evidence from an extension network experiment, *Journal of Development Economics*, Volume 125, Pages 1-20, ISSN 0304-3878, <https://doi.org/10.1016/j.jdeveco.2016.10.004>.
- Kuhlmann, K. (2014). *A value chain approach for improving the enabling environment for food security in Africa* [Presentation slides]. New Markets Lab. http://www.aiard.org/uploads/1/6/9/4/16941550/katrin_kuhlmann.pdf
- Kundhlande G, Franzel S, Simpson B, Gausi E. 2014. Farmer-to-farmer extension approach in Malawi: A survey of organizations using the approach ICRAF Working Paper No. 183. Nairobi, World Agroforestry Centre. DOI: <http://dx.doi.org/10.5716/WP14384.PDF>
- Lukuyu, B., Place, F., Franzel, S., and Kiptot, E. (2012). Disseminating Improved Practices: Are Volunteer Farmer Trainers Effective? *The Journal of Agricultural Education and Extension*, 18:5, 525-540 <http://dx.doi.org/10.1080/1389224X.2012.707066>

- Leonard, D. K. (1997). Reaching the peasant farmers: Organization theory and practice. London, UK: *The University of Chicago Press*.
<https://doi.org/10.1017/S0022278X00009575>
- Moss, J. D. (2018). Inviting autonomy: Common roots and beliefs of self-determination theory and invitational education theory. *Journal of Invitational Theory and Practice*, 24, 17-28. [2018 JOURNAL OF INVITATIONAL THEORY AND PRACTICE \(ed.gov\)](https://doi.org/10.1017/S0022278X00009575)
- Ofuoku, A.U., Agbamu, J.U. (2013): Leadership effectiveness among farmers' self-help groups in Central Agricultural Zone of Delta State, Nigeria. *Asian Journal of Agricultural Extension, Economics and Sociology* 2(1):41-53. <http://dx.doi.org/10.9734/AJAEES/2013/2869>
- Okorley, E., Gray, D., & Reid, J. (2010). Improving Agricultural Extension Human Resource Capacity in a Decentralized Policy Context: A Ghanaian Case Study. *Journal of International Agricultural and Extension Education*, 16(2), 35–46. http://www.aiaee.org/attachments/064_Okorley-eVol-16-2-3.pdf
- Oyelami, B.O., Akinwale, J.A., & Ladele, A.A. (2018). Lead Farmer Extension Approach and Sustainable Extension Service Delivery in Oyo State, Nigeria. *Contemporary Agriculture*, 67, 233 - 241. DOI:10.1515/contagri-2018-0034
- Purkey, W. W., & Novak, J. M. (1984). Inviting school success: A self-concept approach to teaching and learning (2nd ed.). Belmont, CA: Wadsworth Publishing Company.
- Ragasa, Catherine. (2020). Effectiveness of the lead farmer approach in agricultural extension service provision: Nationally representative panel data analysis in Malawi. *Land Use Policy* Vol: 99, pp 104966
<https://doi.org/10.1016/j.landusepol.2020.104966>
- Rivera, W. M., and G. Alex.2004. "Extension System Reform and the Challenges Ahead." *The Journal of Agricultural Education and Extension* 10 (1): 23–23.
<http://documentos.bancomundial.org/curated/es/293751468782366517/pdf/318910Extension1Reform1V21final.pdf>
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). New York: The Free Press
- Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78. <https://doi.org/10.1037/0003-066X.55.1.68>

- Selam Hailemichael and Ruth Haug (2020). The use and abuse of the ‘model farmer’ approach in agricultural extension in Ethiopia, *The Journal of Agricultural Education and Extension*, 26:5, 465-484, <https://doi.org/10.1080/1389224X.2020.1757475>
- Selener, DJ Chenier R Zelaya (1997). *Farmer to Farmer Extension: Lessons from the Field*. New York: International Institute for Rural Reconstruction. <https://edepot.wur.nl/425677>
- Simpson, B, Franzel, S., Degrande, A., Kundhlande G. and Tsafack, S. 2015. Farmer to farmer extension: Issues in planning and implementation. MEAS Technical Note. Modernizing Extension and Advisory Services, USAID.
- Swanson, B, E., & Rajalahti, R., 2010, Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming and Evaluating Extension Systems. *Agriculture and Rural Development Discussion Paper 45*. Washington D.C, The World Bank, pp. 98 – 127. <http://hdl.handle.net/10986/23993>
- Tzikara, C., and Kwesiga, F. (2006). Enhancing Agricultural Productivity in Sub-Saharan Africa through IAR4D and competitive grants processes: Experiences and Lessons. *Conference on Prosperity and Poverty in a Globalized World-Challenges for Agricultural Research*, University of Bonn, Tropentag, October 11-13, 2006, available at www.tropentag.de/2006/abstracts/full/46.pdf
- Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, 4(3), 356–367. <https://doi.org/10.1177/1534484305278283>
- Wellard, K., Rafanomezana, J., Nyirenda, M., Okotel, E., & Subbey, V. (2013). A review of community extension approaches to innovation for improved livelihoods in Ghana, Uganda and Malawi. *The Journal of Agricultural Education and Extension*, 19(1), 21-35. <http://dx.doi.org/10.1080/1389224X.2012.714712>
- World Bank (2007), *World development report 2008: Agriculture for development*. The World Bank, Washington DC (2007)
- The World Bank, 2012. *Agricultural Innovation Systems: An Investment Sourcebook*. Washington, DC: The World Bank.