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Understanding the Contextual Factors Influencing Access to Information for Improved Agricultural Decisions among Agropastoralists in Kilosa and Monduli Districts, Tanzania

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Abstract

This study examined contextual factors influencing access to agricultural information, for improved agricultural decision-making among agropastoralists in Kilosa and Monduli Districts, Tanzania. Specifically, the paper determined the influence of demographic factors on access to agricultural information, ascertained the contribution of user satisfaction with accessed agricultural information, and found the link between ownership of communication channels and access to information for improved agricultural decision-making. Employing multistage and purposive sampling techniques, 395 participants were selected for the study. Quantitative data were collected through a questionnaire while qualitative data were collected using focus group discussions, interviews, and observation methods. Descriptive analysis using the Statistical Product for Service Solutions (SPSS) was applied to the quantitative data. Pearson's Chi-square test was computed to determine the statistical significance of the selected variables at $p < 0.05$. Qualitative data were analysed through content analysis. The study found that demographic characteristics, user satisfaction, information adequacy, household responsibility, and availability of resources influence access to agricultural information for informed decision-making among agropastoralists. It concluded that access to information for agricultural decision-making leads to improved livelihoods. To fulfil agropastoralists' information needs, they should be aware of these factors and use such awareness to improve access to agricultural information. The study recommends engaging stakeholders through training, social networks, and information portals.

Keywords: Access to information, agricultural decision making, agricultural information, agropastoralists income, information needs

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Introduction

Agricultural production in Tanzania is widely acknowledged as the cornerstone of the country's economy. However, Agricultural Sector Development Strategies (ASDS, 2015) highlighted that the mechanisation of farming operations has been notably low, with the majority (97.8%) of mainland farming households relying on manual tools such as hand hoes. The adoption of farm mechanisation, particularly for essential tasks like land preparation, planting, and harvesting, is crucial for advancing the commercialisation of the agricultural sector (ASDS, 2015). The 2021 Multidimensional Poverty Index highlights a concerning statistic that over 80 percent of the country's impoverished population resides in rural areas

sustaining their livelihoods through agricultural activities. These individuals often earn less than US$ 1.90 a day (United Nations Development Programme and Oxford Poverty and Human Development Initiative, 2021).

Access to agricultural information plays a critical role in enhancing the productivity, sustainability, and resilience of farming communities (World Bank, 2021). This is because Agricultural information is vital for farmers to access knowledge essential for making informed decisions in agriculture (URT, 2015). The effectiveness of these decisions is a key factor that determines the success or failure of farming livelihoods (McGregor, 2010). Unfortunately, in many rural areas of Tanzania, farmers face challenges in accessing adequate information, hindering their ability to address socioeconomic needs and make informed choices (Ndimbwa et al., 2019). For instance, a study conducted in Simanjiro revealed that a mere minority of respondents (6%) rarely utilised libraries as a source of information, particularly among those with formal education (Mosha et al., 2018). This low usage was attributed to factors such as inadequate information infrastructure, a poor reading culture, and a lack of knowledge on how to effectively utilize modern information sources (Mosha et al., 2018). Addressing these challenges is crucial for improving farmers' access to relevant agricultural information, empowering them to make informed decisions that can positively impact their livelihoods and contribute to overall rural development in Tanzania. Consequently, the uneven application of agricultural information among farmers has led to suboptimal yields, low surpluses, and insufficient access to livelihood income. This information imbalance has created a more challenging decision-making environment for farming communities compared to other livelihood activities (Person, 2021).

Agropastoralists in Kilosa and Monduli districts have traditionally relied on a combination of crops and livestock farming for their livelihoods. However, these communities are currently grappling with information uncertainties that significantly impact decision-making processes (Mtega, 2019). These uncertainties encompass various aspects such as production methods, market prices, livestock health, pest control, land tenure laws related to acquisition and ownership, climate changes, and the infrastructure for farm produce processing, storage, and transport, among other challenges. This situation exacerbates the socio-economic struggles marked by low income within these communities (Ssegujja, 2011; Silayo, 2016; Mtega, 2019; Yusuf et al., 2021). Despite the longstanding engagement in agropastoral activities, the information available to these communities has proven insufficient in supporting their production needs (Silayo, 2016; Yusuf et al., 2021). The semi-sedentary lifestyle of agropastoralists contributes to erratic access to both print and non-print information. Consequently, their cash-based production remains persistently low, contributing to the endemic issue of poverty in the area. Insufficient production further hinders the ability of agropastoralists to generate the necessary livelihood income, emphasising the urgent need for targeted interventions to enhance access to relevant and timely information, ultimately improving their socio-economic conditions.

To-date, numerous studies have delved into the information needs and communication channels for farmers (Ssegujja, 2011; Liu & Yu, 2014; Zhang, He & Zhu, 2014; Hen, 2020). These studies consistently highlight the challenge of low access to agricultural information among farmers, primarily attributable to weak information infrastructures. In Tanzania, other research endeavours have uncovered the lack of sustainable initiatives to enhance information flow among farmers, identifying it as a hindrance to their livelihoods (Elly & Silayo, 2013; Silayo & Sospeter, 2019; Mtega, 2012). However, a notable gap persists in understanding factors influencing access to information, forming the basis for informed agricultural

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decision-making crucial for improving production and increasing livelihood income. Despite the wealth of existing studies, there is a dearth of systematic investigations that specifically create an understanding of the influence of access to information for improved Agricultural information among agropastoralists context. This oversight underscores the need for a comprehensive study that establishes the link between information access and improved agricultural decisions.

Despite the availability of studies, systematic investigations linking access to information with improved agricultural decision-making among agropastoralists remain scarce. This gap necessitates a need for a study that examines the contribution of access to agricultural information in influencing decision-making for improved agricultural production. Specifically, this paper aims to address this gap by determining the influence of demographic factors towards access to agricultural information for improved production, ascertaining the contribution of user satisfaction with accessed agricultural information on improved agricultural decisions, and finding out the link between ownership of communication channels and access to information for improved agricultural decision making with specific attention to Kilosa and Monduli District in Tanzania.

Literature Review

Theoretical Grounding

Studies on agricultural development consistently highlight that the lack of information plays a significant role in contributing to underdevelopment (Aikael, 2010; Lorenzo, 2011; Mtega, 2016; Ahmed & Ouma, 2015). Recognising the multifaceted nature of agricultural livelihood activities and the unequal distribution of information in various contexts, this paper adopts the Information Use Environment Theory (IUET) proposed by Taylor (2001) to address and fill the theoretical gap. The application of Taylor's IUET in this paper aims to elucidate the connection between access to and the utilisation of information on one hand. On the other hand, the enhancement of agricultural decision-making. Taylor's IUET encompasses a framework of elements that influence the utilization of messages based on the value by which they can be judged. The theory involves the processes of gathering, retrieving, organizing, and communicating information. It emphasizes the need to comprehend information, its dimensions, and the specific user environment, as the user's environment determines the type of information required and the methods for obtaining it. Originally applied to engineers, legislators, and practicing physicians, Taylor's (2001) IUET explores the conscious and unconscious assumptions of these professional groups regarding what information is deemed useful and valuable to them. The theory establishes that culture and the environment in which groups operate significantly influence their information-seeking behaviour and usage patterns. By applying IUET to the context of agropastoralists in Kilosa and Monduli districts, this paper seeks to deepen the understanding of how the information environment shapes farmers' decisions and actions in their agricultural pursuits.

Like other communities worldwide, agropastoralists in Kilosa and Monduli districts possess unique needs and cultures that are specific to their context. These communities practice semi-sedentary life by deriving their livelihoods from both livestock keeping and crop production. The IUET has been instrumental in guiding this paper in investigating the contextual factors that influence access to information and their impact on agricultural decision-making within the socio-economic, cultural, and natural environment of

agropastoralists in the study areas. This approach recognises that the context in which individuals seek information has a profound influence on how they perceive, seek, manage, and utilize information within their environment as information users (Savolainen, 2007). Considering this aspect, the IUET has provided the theoretical framework for this paper, shedding light on the contextual factors that shape access to information to enhance agricultural decision-making. By incorporating the IUET, the study aims to uncover the intricate interplay between the demographic characteristics and ownership of key communication channels in accessing information for improved agricultural outcomes.

Impact of Access to Information in Agricultural Decision-Making

Agriculture, as a primary livelihood activity, necessitates access to pertinent information crucial for informed decision-making (Singh et al., 2011; Rehman et al., 2013; Ahmed & Ouma, 2015). Recent advancements in agricultural information delivery have facilitated the incorporation of new farming methods into the decision-making processes of farmers (Ahmed & Ouma, 2015). This progress has empowered farmers to identify, collect, and utilize information to assess various alternatives and make choices in their agricultural practices (Parsons, 2021). For a decision to be effective, the new ideas introduced must align with existing practices, minimising complexity and reducing the risk of failure while allowing for adaptability to changes (Parsons, 2021). This aligns with the principles of the IUET, particularly emphasizing the role of culture and the user's environment as crucial determinants in shaping the type of information needed and how it can be obtained (Taylor, 2001). By acknowledging the significance of cultural context and the user's environment, the IUET contributes to a comprehensive understanding of the factors influencing how farmers access, interpret, and apply information in their agricultural decision-making processes.

In the current agricultural landscape, characterised by high dynamics and unpredictability, farmers face the challenge of making well-informed decisions and choices from a plethora of alternatives presented by various information sources to ensure optimal agricultural productivity (Baker & Musker, 2017). However, the reality is that many farming decisions are often made arbitrarily, lacking thoughtful consideration of informed alternatives (Sawe, 2022). In the decision-making process, individuals may find themselves stuck, unable to navigate ideas to reach the intended outcome, resulting in undesired consequences (Rehman et al., 2013). Given this context, making significant farming decisions necessitates farmers to possess well-informed knowledge that guides the balancing of factors such as compatibility, complexity, and relative advantage before arriving at a decision (Parson, 2021). Access to relevant information, therefore, becomes a crucial component in empowering farmers to make informed and strategic decisions that contribute to the success of their agricultural endeavours.

Role of Information in Agricultural Production

The role of access to information in driving development within the agricultural production sector has been a subject of extensive debate in various studies (IFLA, 2017; Kelil et al., 2020). These studies consistently emphasise that information, when effectively accessed and utilized in decision-making related to socio-economic productions, including agriculture, can empower farmers to bring about positive changes (Mtega et al., 2016; Baker & Musker, 2017). However, farmers in rural settings often face challenges in accessing essential agricultural information due to various inhibiting factors. As highlighted by Kalokola (2016), some of these factors stem from social status, social networks, the cultural context of farmers, and the availability of communication resources. Consequently, agricultural activities in these settings

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may not reach the standards necessary to yield basic food requirements and meet other social needs, rendering the efforts of farmers to improve their quality of life futile (Mtega & Ngoepe, 2019). Inadequate access to crucial information hinders farmers from making informed decisions, ultimately affecting the productivity and outcomes of their agricultural pursuits in rural areas.

Effective agricultural decision-making is closely tied to communication networks with buyers and consumers of agricultural products. Access to information plays a pivotal role in adding value to production, facilitating marketing strategies, determining pricing, and ultimately enhancing livelihoods (Mwalukasa, 2013; FAO, 2017). As such, recognizing and addressing the factors influencing access to agricultural information becomes integral to promoting sustainable agriculture, economic development, and improved quality of life for rural communities in Tanzania.

There exists a significant gap between the actual needs of farmers and the information available to them. This gap is exacerbated by the farmers' challenges in sustainably exchanging agricultural messages, leading to communication barriers among farmers themselves and with other stakeholders (Ferry, 2012; FAO, 2014). The literature gap that this study seeks to address revolves around the inadequate explanation of how access to and the use of information can influence agricultural decision-making, specifically in the context of agropastoralists leading a semi-sedentary existence and grappling with severe poverty. The existing body of literature has paid limited attention to the factors influencing access to information as a foundation for informed agricultural decision-making capable of enhancing agricultural productivity. This paper aims to bridge this gap by shedding light on the factors that influence access to information and their implications for informed decision-making among agropastoralists to improve agricultural productivity in these communities.

Material and Methods

This study employed a descriptive research design with a mixed-method approach to investigate the factors influencing access to information for informed agricultural decision-making among agropastoralists in Kilosa and Monduli districts. These districts were purposively selected due to their significant agropastoralist populations, which represent a considerable portion of Tanzania's rural communities (URT, 2013). Furthermore, these areas have experienced recurrent communal conflicts arising from competition over natural resources, particularly arable and pasture lands (Benjaminsen et al., 2009; Maganga et al., 2007). Environmental challenges such as land degradation, attributed to unsustainable cultivation practices, overstocking of livestock, and deforestation, have exacerbated soil infertility and reduced agricultural productivity in these regions (Mung'ong'o & Mwamfupe, 2003; URT, 2001; Mng'ong'o et al., 2021). Addressing these challenges requires a comprehensive understanding of the socio-economic and contextual factors influencing information access, which this study aims to provide

The study utilised a multi-stage sampling technique to select a total of three hundred and ninety-five (395) respondents who participated in the study. Data collection involved various data collection techniques including questionnaires administered to Household Heads (HH), Key Informant Interviews (KIIs) with Village Executive Officers (VEOs) and Ward Agricultural Extension Officers (WAEOs) and Focus Group Discussions (FGDs) with Leaders of Women Groups (LWG) and Clan Heads (CHs). Non-participant observation in the study was also employed to observe farmers' involvement in socio-economic activities in the sources they often use for accessing agricultural information study area. To ensure the

adequacy of the data collection instruments, preliminary testing was conducted. Questions that did not yield satisfactory answers were either discarded or restructured before the main survey. Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) software to measure the frequency among variables of the study. Pearson's Chi-Square test using the formula $\chi^2 = \sum \frac{(O-E)^2}{E}$ was also computed to determine the statistical significance of selected variables at $p < 0.05$. Moreover, the study applied the formula $USAT = \frac{Total\ number\ of\ responses}{Total\ numbe\ r\ of\ Users} x\ 100$) to compute the rate of user satisfaction with accessed agricultural information. In analysing qualitative data, content analysis was employed as such, themes were identified and discussed to enhance and complement quantitative data.

Results and Discussions

Characteristics of Respondents

In this paper, age, gender, marital status, and education were considered important variables. Indeed, these variables formed the primary basis for determining the socioeconomic characteristics of the respondents as the needs and services of any given population depend on these variables.

Age and gender of respondents

To identify quantifiable study elements, the respondents were asked to indicate their age and sex. These variables produced data on the level of participation and experience of individuals in socio-economic production activities as suggested by Mzyece (2010). Table 1 presents the results:

Table 1: Age and Gender of Respondents by District (n=395)

Category	District						Grand Total
	Kilosa			Monduli			
	Male	Female	Total	Male	Female	Total	
15-24	7(1.8%)	0(0%)	7(1.8%)	1(0.3%)	7(1.8%)	8(2.1%)	15(3.8%)
25-34	48(12.2)	3(0.7%)	51(12.9%)	13(3.3%)	3(0.7%)	16(4.0%)	68(16.9%)
35-44	32(8.1%)	29(7.3%)	61(15.4%)	28(7.1%)	10(2.4%)	38(9.5%)	99(24.9%)
45-54	65(16.5)	18(4.5)	83(21.0)	30(7.3%)	11(2.8%)	41(10.3%)	124(31.3%)
55-64	22(5.6)	5(1.2%)	27(6.8%)	28(7.1%)	0(0%)	28(7.0%)	55(13.8%)
65+	17(4.3%)	4(1.0%)	21(5.3%)	13(7.3%)	1(0.3%)	14(3.5%)	35(8.8%)
Total	191(48.3 %)	59(14.9%)	250(63.3 %)	113(28.6 %)	32(8.1%)	145(36.7 %)	395(100%)

Source: Field Data

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Responses in Table 1 show that the respondents who participated in this study were in the 45-54 age group; and were in the 35-44 age group with 124 (31.3%) and 99 (24.9%) respondents respectively, the majority being male. These are the most productive age and as per established norms of agropastoralists, females are less involved in agropastoral production activities.

Marital Status of Household Heads

Respondents were also asked to state their marital status. The responses show that 233 (59.0%) and 139 (35.2%) Kilosa and Monduli districts, respectively, were married. Another 14 (3.5%) respondents from Kilosa and five (1.3%) from Monduli were single. There was one (0.2%) widow from Kilosa and four (1.0%) from Monduli districts.

Educational level of respondents

Education level of respondents was examined as one of the demographic characteristics of respondents in the study areas. Results are presented in Table 2:

Table 2: Respondents' Educational Levels (n=395)

District	Gender	Category				
		NPSE	PSE	PPSE	Total by District	Grand Total n=395
Kilosa (n=250)	Males	54(21.6%)	118(47.2%)	19(7.6%)	191(76.4%)	191(48.3%)
	Females	38(15.2%)	20(8.0%)	1(0.4%)	59(23.6%)	59(14.9%)
	Total	92(36.8%)	138(55.2%)	20(8.0%)	250(100%)	250(63.3%)
Monduli (n= 145)	Males	27(18.6%)	70(48.3)	16(11.0%)	113(77.9%)	113(28.6%)
	Females	18(12.4%)	12(8.3%)	2(1.4%)	32((22.1%)	32(8.1%)
	Total	45(31.0%)	82(56.5%)	18(12.4%)	145(100%)	145((36.7%)
Grand Total		137(34.6%)	220(55.6%)	38(9.6%)	395(100%)	395(100%)

Source: Field Data

***Key;**

NPSE =No primary school Education, PSE = Primary School education, PPSE=Post-primary school Education

Factors Influencing Access to Information for Agricultural Decision Making

The study's findings reveal that access to information for agricultural decision-making among agropastoralists in the study areas is influenced by several factors. These factors include demographic characteristics, information adequacy, household responsibility, satisfaction with accessed information channels, and the ownership of information channels. In essence, the access to and utilisation of agricultural information by agropastoralists is shaped by a combination of individual characteristics, the sufficiency of available information, their approach to seeking information, their satisfaction with the chosen information channels, and the overall availability of necessary information resources. These factors contribute to the complex landscape of agricultural decision-making among agropastoral communities in the studied districts.

Demographic influences on access to agricultural information

This study delved into demographic factors such as age, gender, marital status, and educational background to understand how these variables influenced access to information

for improved agricultural decision-making. Demographic factors form the basis for decision-making responsibility among agropastoralists. The agropastoralists in the study area practice age-set social organisation where the distribution of responsibility is done according to age, gender, and marital status as discussed hereunder.

Age and gender on access to agricultural information

The study findings demonstrated that the age, gender, and Marital status of agropastoralists influence the process of access to information crucial for enhancing their decisions in agriculture. The study focused on the main productive population in the study areas, considering their household responsibilities. For instance, most of the respondents fell within the average age group categories of 35-44 and 45-54, with a notable 76.3 percent being male (Table 1). Based on findings, it can be taken that farmers in their middle adult age of 30 to 50 typically have more experience and may be more conservative in their decision-making, preferring traditional farming practices.

In contrast, younger farmers are often more open to adopting new technologies and innovative practices such as mobile phones and internet platforms During FGD with women Group Leaders (WGL) it was noted that there is unequal access to agricultural information between males and females among agropastoralists as women had few opportunities to participate in meetings that make major decisions. This corresponds to observation by Mbo'o-Tchouawou and Colverson (2014) who established that older farmers typically rely on face-to-face interactions and local networks depending much on traditional knowledge passed down through generations and often show reluctance to adopt new technologies. The findings also echo Meinzen-Dick et al. (2011) who found that women often face societal, and mobility barriers rooted in cultural norms and practices that tend to narrow their freedom leading them to rely on informal networks for information.

Marital Status on Access to Agricultural Information

Regarding the marital status of respondents who participated in the study, findings reveal that a substantial proportion of the participants, accounting for 94.2 percent, were married. Of these respondents, 233(59.0%) were from Kilosa and 139(35.2%) from Monduli districts, indicating the presence of significant family responsibilities. Observations made in both districts revealed that personal characteristics such as sex and marital status have significant implications for information access and utilization because there were few females and unmarried men who participated in the village meetings. The study highlighted that women, in particular, face marginalization due to domestic responsibilities, reflecting elements of gender inequality. This was validated during the FGDs with representatives of women groups in Kilosa District: *"We relied much on the information we received from our spouses because they are the decision-makers. Also, the domestic duties we are involved in limit us from seeking information available far from our homes" (FGD Respondent 6)*

FGDs with women group representatives brought to light the disadvantages faced by women in accessing information on various topics such as improved seeds, milk processing, seasonal considerations, and financial institutions providing soft loans for agricultural purposes. The participants in these discussions expressed concerns about the lack of access to such information, emphasising that it created a significant gap hindering them from meeting their basic needs due to exclusion from direct participation in major income generation activities. Key Informant Interviews with leaders of women Groups further revealed that in many cases, men dominate almost all major agricultural decisions. For example, one

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respondent said: "*Even in married households, some norms restrict women from freedom to participate in meetings and some other social gatherings that make major agricultural decisions, thus, limiting us from the potential benefits of collaboration*" (FGD Respondent 3). Agricultural decision-making among agropastoralists is gendered to the extent that male voices dominate. This harms enhancing livelihoods as major decisions lack diversity and inclusion of views and feelings of women which could add value to the production.

Exercising gender bias in the access to important information required for agricultural decision-making can translate into a deterioration of household income and can break down the family knot. These findings resonate with Talle (2019) who did a study on Gender Dynamics in Maasai Pastoralism and concluded that gender roles within Maasai society restrict women, from full authority to make agricultural decisions and sometimes limit their direct engagement with extension services. These findings align with observations made by Mongula (2008), who established that marital status, indeed has implications for information access and use and that, despite rural women making substantial contributions to livestock production activities, their involvement is often underestimated and undervalued, with major decisions predominantly under male dominance. In consequence, the limited participation of women in major agricultural decision-making negatively impacts agricultural production decisive for enhancing their livelihoods.

Influence of Educational Background and Literacy Level

Regarding the educational background of respondents, the findings in Table 2 revealed that many (55.6%) of the respondents had primary school education, 34 percent had not attended any formal education, and 9.6 percent had post-primary school education. The under-representation of post-primary school education among the respondents was attributed to the low priority accorded to education by agropastoral communities. During Key Informant Interviews (KIIs), a Village Executive Officer (VEO) in Monduli District shared that there are by-laws in their district stating that parents whose children do not join post-primary education (secondary school) after being selected should be taken to court. However, the VEO acknowledged that the enforcement of these by-laws has been challenging, as some parents and children tend to migrate to distant pastoral areas with their cattle. This sheds light on the complexities and challenges in promoting education within agropastoralist communities.

It emerged during FGDs with representatives that in some families, little attention is paid to children's education. Some children were tasked with herding livestock during weekdays, especially when there was a lack of other individuals available for the task. The need for children to contribute to livestock herding during weekdays became a priority over their formal education. These findings align with a study by the Food and Agriculture Organisation (FAO, 2017) which highlighted the low priority given by agropastoral parents to post-primary education for children in farming environments. This low priority was identified as a significant impediment to increasing agricultural production in rural Tanzania. The trade-off between the need for labour and formal education underscores the challenges faced by agropastoralist communities in prioritising education for their children.

Information Adequacy

Respondents were asked to indicate whether the information they had access to was adequate for meeting their agricultural information needs, and the responses were compiled and presented in Figure 1. The table outlines the perceptions and satisfaction levels of

agropastoralists regarding the sufficiency of the information they accessed for addressing their agricultural information needs.

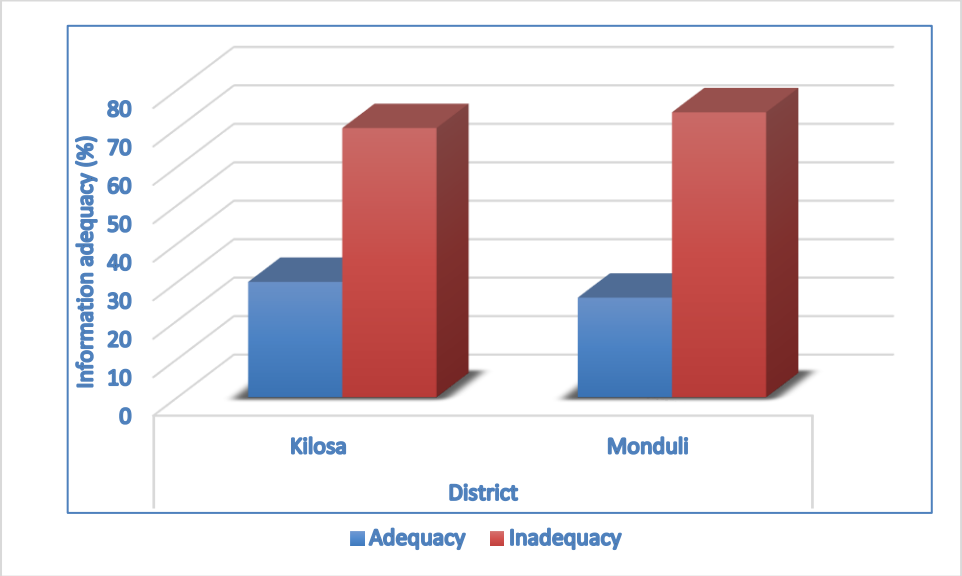

Figure 1: Information adequacy
Source: Field Data

The results in Figure 1 indicate inadequacies in the accessed agricultural information within the study areas. This suggests that the agricultural information accessed by agropastoralists was largely insufficient to meet their needs for agricultural production. Key reasons for this inadequacy, as uncovered during Key Informant Interviews (KIIs) with Clan Heads in Kilosa and Village Executive Officers (VEOs) in Monduli District, included factors such as inadequate information resources, poor information infrastructures supporting the dissemination of agricultural information, and a low level of knowledge among agropastoralists in the study areas. During these interviews, it was noted that crucial agricultural information related to disease control, the availability of inputs, the distribution of arable and pastureland, and weather-related information was not effectively and formally communicated to farmers. Consequently, the inadequacy of relevant information limited production among agropastoralists, leading to insufficient income. These findings underscore the importance of addressing information gaps and enhancing the dissemination of relevant agricultural information to improve the overall productivity and livelihoods of agropastoralists in the study areas.

Influence Gendered Division of Labour in Seeking Agricultural Information

The study also revealed that the distribution of household responsibilities among agropastoralists is gendered thus, men and women at the household level perform different roles. The differences have a bearing influence on the process of access to information for agricultural decision-making in the study areas. The assessment of household responsibilities in seeking agricultural information involved understanding the respondent's critical role in seeking information. Respondents were asked to indicate the person(s) responsible for seeking

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information for agricultural decision-making at the household level. Figure 2 summarises the results:

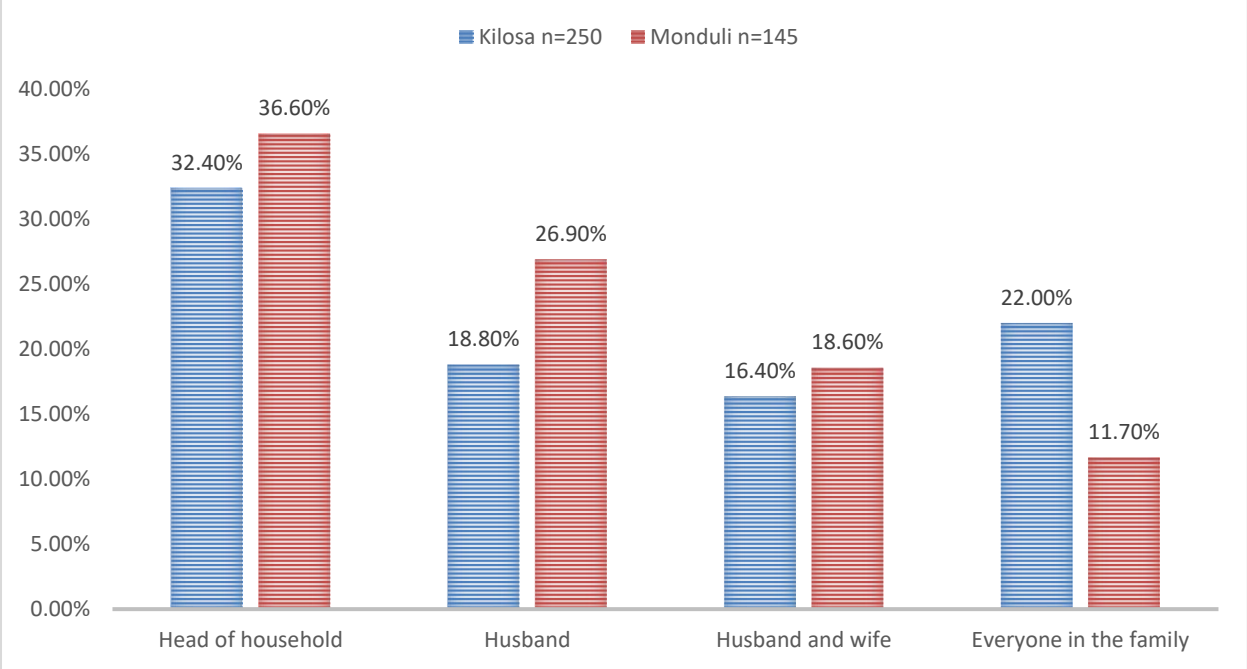

Figure 2: Responsibility of Seeking Information at Household Level (N=395)

Source: Field Data

The findings indicate the presence of gendered roles in the responsibility of seeking agricultural information at the household level. As presented in Table 4.4, a significant percentage of respondents acknowledged that the responsibility of seeking information for agricultural decision-making lies with the household head (33.9%) and husband (21.8). Additionally, observation in the study areas noted that women were generally less active in seeking agricultural information as they rarely attended community and clan meetings where crucial information was shared. KIIs with Clan Heads revealed that culturally, the husband was considered the overseer of the family and, therefore, was expected to be the one to seek information and therefore must be well-informed about various aspects of social, cultural, and economic information. These findings reflect patriarchal norms, where men are viewed as the head of the household, tasked with ensuring the family's well-being by staying well-informed and making decisions based on that knowledge. It also suggests that the flow of information and responsibility is gendered, with men expected to have broader access to knowledge, while women and other family members are assumed to play more passive or supportive roles. These findings align with the research of Odini (2014), who conducted a study on the access to and use of agricultural information by small-scale women farmers in support of efforts aimed at achieving food security in Vihiga, Kenya. The study found that women tended to access agricultural information from informal sources, especially their husbands, rather than formal sources. As Odini (2014, p. 104) states, "Information-seeking behaviour is influenced by activities and problems at hand, that is, if women wanted to know how to apply pesticides, they went looking for information from whomever they thought had the right information."

The insights from FGDs with agropastoralists representatives in both districts emphasized that families were responsible for seeking information based on the roles each member played in the family. However, women leaders challenged the existing division of labour, highlighting the low status of women that restricted their access to information primarily from informal sources such as their husbands and fellow women. This finding aligns with a study by Isaya et al. (2018) on the information needs and seeking behaviour of women in Borno State, Nigeria, which revealed that most of the agricultural information sources consulted by women were informal. The rural context introduces variations in women's access to information, and it's crucial to recognize that women are not a homogenous group. Differences in education levels, social values, backgrounds, and resource access and control capabilities among women can significantly influence their access to information relevant to agricultural decision-making.

Information User Satisfaction

The findings from the respondents regarding satisfaction with the accessed information channels for agricultural decision-making reveal a prevalent dissatisfaction among the majority. The Chi-square test was computed to test the rate of satisfaction using the formula $\chi^2 = \sum \frac{(O-E)^2}{E}$. Findings are presented in Table 3:

Table 3: Satisfaction with Information Accessed (N=395)

Category	**District**			**Chi-Square Test**
	Kilosa (n=203)	Monduli (n=108%)	**Total**	
Satisfied	59 (29.1%)	56 (38.6%)	**115 (29.1%)**	χ^2 = 0. 884
Dissatisfied	291 (70.9%)	85 (61.4 %)	**280 (70.9%)**	df = 1
Total	**250 (100%)**	**145(100%)**	**395 (100%)**	P = 0.347

Source: Field Data

Findings in Table 4.5 show that most of the respondents in the study areas were dissatisfied with the accessed agricultural information contributing insignificantly to agricultural decision-making. This dissatisfaction suggests that the information accessed did not adequately meet the agricultural decision-making needs of the respondents. User satisfaction, as an important measure of information quality, provides valuable insights into the effectiveness of the information accessed in addressing the specific challenges and decision-making requirements of the users.

The lack of significant statistical difference in satisfaction rates, as indicated by Pearson's Chi-square test, implies a consistent trend of dissatisfaction among the respondents. This pattern underscores the need for a more targeted and effective approach to delivering agricultural information to agropastoralists. It also highlights the importance of understanding the specific information needs and preferences of the target audience to enhance user satisfaction and the overall impact of the information provided. Addressing the factors contributing to dissatisfaction and tailoring information delivery methods to better align with the preferences and requirements of agropastoralists can contribute significantly to improving the overall effectiveness of agricultural information dissemination in these communities.

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Further analysis of the rate of information user satisfaction with the information indicated that they had access. Using the formula $USAT = \frac{Total\ number\ of\ responses}{Total\ numbe\ r\ of\ Users} x\ 100$), thus, USAT= $\frac{110}{395} x\ 100\%$ = 27.8%. In this regard, the study results indicate a low rate of satisfaction. This pattern underscores the need for a more targeted and effective approach to delivering agricultural information to agropastoralists. It also highlights the importance of understanding the specific information needs and preferences of the target audience to enhance user satisfaction and the overall impact of the information provided. Addressing the factors contributing to dissatisfaction and tailoring information delivery methods to better align with the preferences and requirements of agropastoralists can contribute significantly to improving the overall effectiveness of agricultural information dissemination in these communities.

Also, during KII with WAEOs and WEOs it was revealed that limited channels that deliver the needed information within agropastoral context, language barriers, limited capacity to use some communication devices due to illiteracy, poor infrastructure such as inadequate electric power supply and unreliable network constrain access to agricultural information among agropastoralists. The agropastoralists were feeling discouraged from relying on scanty information and employing it in decision-making considering the unpredictable consequences. These findings compel the findings of the study by Parsons (2021), who linked good agricultural decision-making with farmer's access to information that can widen their understanding of what has to be achieved by making such decisions, about the context in which the decision is made to create some great alternatives from which to choose.

KIIs CH within Monduli pointed out further that programmes broadcasted through television could not be accessed by agropastoralists because many families do not have television and the few who manage it face the problem of unreliable electrical power and exorbitant costs. The CHs also revealed that radios were available to almost all families, but these families have not allocated specific time for listening to the radio. In this regard, one respondent said: *"Many of our families have only one radio, which most of the time men take for listening to music while working."* The implication is that the radio was more of an entertainment than information information-providing medium to access agricultural knowledge. As a result, little relevant information was accessed through the radio escalating information dissatisfaction. Therefore, agropastoralists are less satisfied with the agricultural information they have access to. Important information that is disseminated through the available channels within agropastoralists' context in terms of contents, proximity, and affordability should give them greater satisfaction. These findings concur with Mtega, (2012) who observed that agricultural information provided by many information channels is not context-specific and not packaged in appropriate forms suitable for rural communities. It is possible to hold that adequate context-specific information could illuminate agropastoralists on problems constraining them from reaching informed agricultural decisions and their application for upgrading agricultural production.

Ownership of key communication channels

Ownership of key communication channels such as radio and/or mobile telephone was also a factor that influenced access to information for agricultural decision-making among agropastoralists.

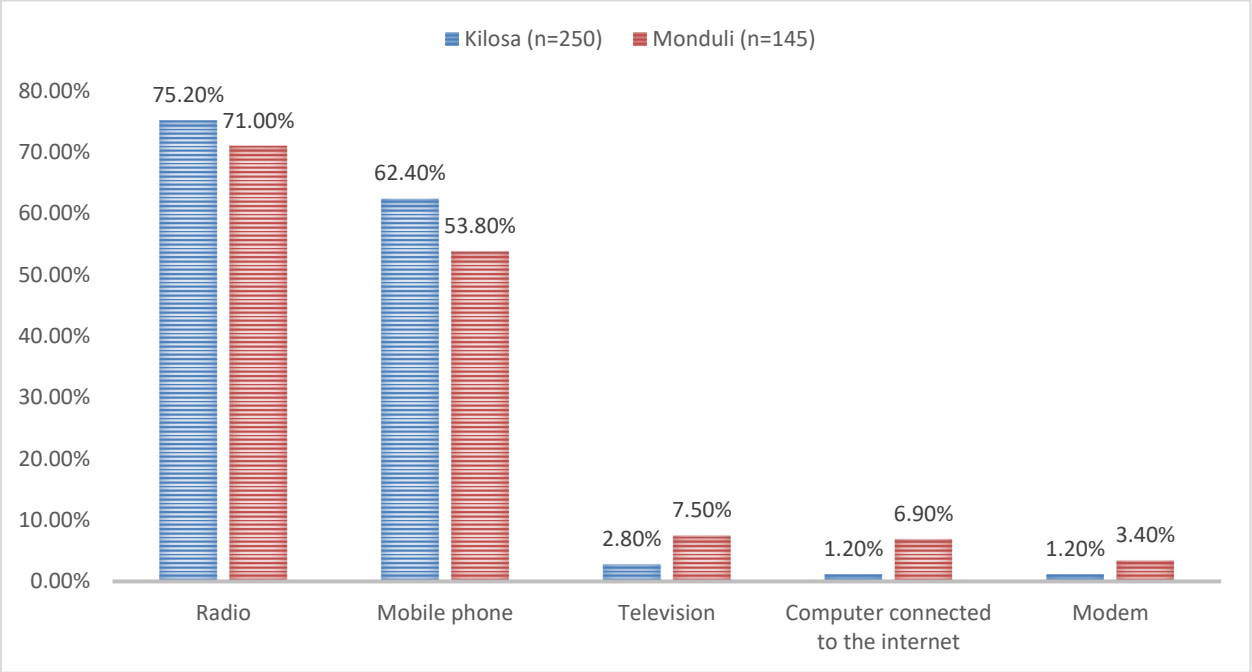

Figure 3: Ownership of Information and Communication Channels

Source: Field Data

Based on the data in Figure 3, most of the respondents in Kilosa and Monduli districts own radios (53.4) and mobile phones (46.6%) compared to television (4.5%) and computers (3.3%). FGDs with agropastoralists in Kilosa and Monduli districts revealed that, even though many people had radio and mobile phones, there were complaints that lack of electricity and low income among agropastoralists limited their use. It was observed that, in the study areas, many cattle herders were listening to music through radio appliances available on their mobile phones. This meant that if agricultural information could be organized and disseminated through radio and mobile phones, it could reach and be used by several agropastoralists for making agricultural decisions.

The findings of the present study have also shown that there was inadequate access to agricultural information attributed to variations in ownership of information-accessing facilities. The study found such variation was exacerbated by differences in income, age, educational level, gender, and marital status among agropastoralists. These findings concur with those of Saleh and Lasisi (2011) and Odini (2014) who observed that the information needs of farmers vary depending on the complexity of the problems the farmers encounter in their day-to-day production activity. It follows that inadequate acquisition of communication facilities limits access to agricultural information thus which in turn hampers the making of informed decisions that could be crucial to boosting agricultural production and alleviating poverty among some of the agropastoralists.

On the other hand, it was noted that owning a communication facility by agropastoralists was not necessarily an assurance that the person would access relevant information for agricultural decision-making. For example, the study found problems

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associated with a lack of electricity for recharging mobile phones, inadequate income to purchase batteries for the radios, and a mismatch between the farmers' time and airing time for most of the radio agricultural programmes. Information accessed by agropastoralists through different information channels for agricultural decision-making might have some reasonable degrees of clarity and usefulness due to the diversity of information contents.

Using multiple information communication channels available within farmers' environments encourages access to agricultural information relevant to enhancing decisions decisive for agricultural and socio-economic productivity (Msoffe & Ngulube, 2017; Mtega & Ngoepe, 2019). A similar idea had been coined by Taylor's (2001) Information use environment theory that users' environment determines the kind of information needed and how to obtain it. This is because the context in which one seeks information has a critical influence on defining the user information needs and the possibility of using available communication channels to access such information. Thus, agropastoral context is what describes why and how agropastoralists need, seek, manage, and use information in their environment to increase agricultural productivity and raise their income.

Furthermore, the nature of the communication channel one uses may influence access to agricultural information. During KII with VEOs and WAEOs, it was found that elderly people did not prefer print information channels because they were too expensive for them and required some literacy skills. During FGDs with women groups, it was revealed that the use of mobile phones as a means of accessing information for agricultural decision-making is not certain because very few of them were aware of some applications used in the community media such as YouTube, WhatsApp, and Instagram. In the study areas, social networks could have influenced agropastoralists' access to agricultural information if many households had had access to such communication channels and if the users of the available communication devices had a clear understanding of proper ways to manipulate the devices.

Implication of the study

The findings of this study have far-reaching theoretical and practical implications among agropastoralists in the study areas rural farmers in general and policy makers. Theoretically, the study aligns with global goals such as ending poverty (SDG 1) and achieving zero hunger (SDG 2) by empowering farmers with the knowledge needed for improved agricultural decisions. Practically, the insights from the study can guide the design of user-friendly and culturally relevant information and communication technologies (ICTs). For instance, mobile applications tailored to the literacy levels and languages of rural farmers can facilitate access to weather forecasts, market prices, and farming tips. The study further can provide policymakers with an understanding of the barriers agropastoralists and rural farmers face in accessing agricultural information, such as poor infrastructure, digital illiteracy, or language barriers. Such understanding empowers them with a decisive knowledge that can guide the development of policies to improve rural connectivity, invest in farmer education, and promote localized content creation.

Conclusion and Recommendations

This study assessed the influence of access to information for improving agricultural decision-making among agropastoralists in Kilosa and Monduli districts. The findings of the study have revealed that understanding of factors that influence access to information for improved agricultural decision-making is critical for enhancing the dissemination of crucial information

that could make a difference in the lives of agropastoralists. The findings of this study further hold that understanding of factors influencing access to information will empower agropastoralists with the capability to curb anomalies such as lack of awareness and failure to make informed decisions due to poor access to relevant information. It emerged that agropastoralists in the study areas neither accessed nor received adequate context-specific information that could be used for making informed agricultural decisions due to various factors. These factors include demographic characteristics, information inadequacy, dissatisfaction with the accessed information, and inadequate information resources. The study concludes that there is a link between access to information for agricultural decision-making and increased income among agropastoralists. Implicitly, the information needs of agropastoralists are fulfilled when they are aware of the factors influencing access to information and use such awareness to improve access to agricultural information as a base for making agricultural decisions critical for improving agricultural productivity. This paper calls for the provision of awareness creation training to agropastoralists on context-specific information that can influence their decisions on the kind of information channels to opt for when seeking information for making agricultural decisions such as production information, livestock management, pricing of agricultural produce; and establishing a user-friendly source such as agricultural information portal for dissemination of agricultural information in the study area and other similar rural areas. Furthermore, there is an overriding need to formulate user-friendly policies and programmes that are context-specific to guide agriculturalists' information communication strategies that can enhance agropastoralists' access to agricultural research findings that could help them make a difference in their agricultural livelihoods.

References

Ahmed, A., & Ouma, C. (2015). Agricultural information diffusion and food security in Tanzania: Analysis of current knowledge and research gaps. *Journal of Agricultural Sciences*, *14*(1), 21–23.

Aikael, J. (2010). *Determinants of Rural income in Tanzania: An Empirical Approach*.

Baker, T., & Musker, R. (2017). How access to information can help end hunger and promote nutrition. In *Development and Access to Information* (p. 110). International Federation of Library Associations and Institutions (IFLA. https://da2i.ifl.

Benjaminsen, T. A., Maganga, F. P., & Abdallah, J. M. (2009). The Kilosa killings: Political ecology of a farmer-herder conflict in Tanzania. *Development and Change*, *40*(3), 423–445. https://doi.org/10.1111/J.1467-7660.2009.01558.

Elly, T., & Silayo, E. E. (2013). Agricultural information needs and sources of the rural farmers in Tanzania: A case of Iringa rural district. *Library Review*, *62*(8), 547–566. https://doi.org/10.1108/LR-01-2013-0009

FAO. (2017). *Productivity and efficiency measurement in agriculture literature review and gaps analysis*. *February*, 1–77. https://www.fao.org/3/ca6428en/ca6428en.pdf

Geng, W., Liu, L., Zhao, J., Kang, X., & Wang, W. (2024). Digital Technologies Adoption and Economic Benefits in Agriculture: A Mixed-Methods Approach. *Sustainability 2024, Vol. 16, Page 4431*, *16*(11), 4431. https://doi.org/10.3390/SU16114431,

Isaya, E. L., Agunga, R., & Sanga, C. A. (2018). Sources of agricultural information for women farmers in Tanzania. *Information Development*, *34*(1), 77–89.

https://doi.org/10.1177/0266666916675016.

Kalokola, R. D. (2015). *Possibilities of delivering demand-driven climate information for rural climate change adaptation a case of Longido district, Arusha region, Tanzania*. http://localhost:8080/xmlui/handle/123456789/3594.

Kelil, A., Girma, Y., & Hiruy, M. (2020). Access and Use of Agricultural Information in Africa: Conceptual Review. *Information and Knowledge Management*, *10*(7), 1–5. https://doi.org/10.7176/IKM/10-7-01

Lorenzo, G. (2011). *Development and Development Paradigms A (Reasoned) ReviewPrevailling Vision*. http://www.fao.org/docs/up/easypo l/882/d%09efining_development_paradigms_102en.pdf

Maniriho, A. (2024). Examining the relationships between ICT-facilitated input market and crop productivity among small-scale farmers in Southern Rwanda. *Cogent Social Sciences*, *10*(1). https://doi.org/10.1080/23311886.2024.2423859.

Mbo'o-Tchouawou, M., & Colverson, K. E. (2014). *Increasing access to agricultural extension and advisory services: How effective are new approaches in reaching women farmers in rural areas?* International Livestock Research Institute. https://hdl.handle.net/10568/35495

Mongula, B. (2008). Does national development policy encourage participatory communication? The case of Tanzania. *African Communication Research*, *1*(1), 113–136.

Mosha, G. E. (2018). Information Needs and Sources of Maasai Pastoralists at Orkesumet in Simanjiro District Manyara Region -Tanzania. *Library Philosophy and Practice*. https://www.academia.edu/87382689/Information_Needs_and_Sources_of_Maasai_Pastoralists_at_Orkesumet_in_Simanjiro_District_Manyara_Region_Tanzania.

Msoffe, G., & Ngulube, P. (2017). Utilisation of poultry management information in three rural districts of Tanzania. *SA Journal of Information Management*, *19*(1). https://doi.org/10.4102/SAJIM.V19I1.729.

Mtega, W. P. (2012). Access to and Usage of Information among Rural Communities: a Case Study of Kilosa District Morogoro Region in Tanzania. *Partnership: The Canadian Journal of Library and Information Practice and Research*, *7*(1). https://doi.org/10.21083/PARTNERSHIP.V7I1.1646.

Mtega, W. P., & Ngoepe, M. (2019). Knowledge management best practices among rice farmers in selected areas of Tanzania. *Https://Doi.Org/10.1177/0961000619856087*, *52*(2), 331–344. https://doi.org/10.1177/0961000619856087.

Mung'ong'o, C., & Mwamfupe, D. (2003). *Poverty and Changing Livelihoods of Migrant Maasai Pastoralists in Morogoro and Kilosa Districts, Tanzania*.

Mwalukasa, N. (2013). Agricultural information sources used for climate change adaptation in Tanzania. *Library Review*, *62*(4), 266–292. https://doi.org/10.1108/LR-12-2011-0096/FULL/XML

Mwatawala, H. W., Lupembe, T. J., & Maguta, M. M. (2009). Factors Affecting Access to Agricultural Inputs among Smallholder Tobacco Farmers in Kahama District, Tanzania. *Gender & Behaviour, 17(2), 2019, 13007-13015*, *17*(1), 1–19. https://doi.org/10.1101/2020.11.10.376129.

Mzycece, A. (2010). *Factors influencing Cowpea producers' choice of marketing channels in Zambia* [University of Zambai]. http://dspace.unza.zm/handle/123456789/4527.

Nations, U. (2021). 2021 Global Multidimensional Poverty Index (MPI). In *Human Development Reports*.

Ndimbwa, T., Ndumbaro, F., & Mwantimwa, K. (2019). Delivery mechanisms of agricultural information and knowledge to smallholder farmers in Tanzania: A meta-analysis study. *Salaam Library Journal*, *14*(2), 87–98.

Odgaard, R., & Maganga, F. (2007). *Contested Identities and Resource Conflicts in Morogoro Region, Tanzania : Who is Indigenous?*

Odini, S. (2014). Access to and use of agricultural information by small-scale women farmers in support of efforts to attain food security in Vihiga County, Kenya. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, *5*(2), 100–107. http://ir.mu.ac.ke:8080/jspui/handle/123456789/2704.

Rehman, F., Muhammad, I., & Ashraf, I. (2013). Effect of farmers' socioeconomic characteristics on access to agricultural information: Empirical evidence from Pakistan. *The Journal of Animal and Plant Sciences*, *23*(1), 324–329.

Rohit, J., Bal, S. K., Anshida Beevi, C. N., Nagasree, K., Ravi Shankar, K., Nirmala, G., Pushpanjali, Samuel, J., Veni, V. G., Nagarjuna Kumar, R., Pankaj, P. K., Prabhakar, M., & Singh, V. K. (2023). Exploring farmers' communication patterns and satisfaction regarding the adoption of Agromet advisory services in semi-arid regions of southern India. *Frontiers in Sustainable Food Systems*, *7*. https://doi.org/10.3389/FSUFS.2023.1284880.

Saleh, A., & Lasisi, F. (2011). Information Needs and Information Seeking Behavior of Rural Women in Borno State, Nigeria. *Library Philosophy and Practice (e-Journal)*. https://digitalcommons.unl.edu/libphilprac/625.

Sawe, J. R. (2022). Access to and Use of Agricultural Information for Smallholder Farmers' Adaptation to Climate Change in Iringa Rural District, Tanzania. *University of Dar Es Salaam Library Journal*, *17*(2), 54–71. https://doi.org/10.4314/UDSLJ.V17I2.5.

Silayo, E. E. (2019). Entrepreneurial information needs for women farmers cultivating banana in Moshi Rural, Kilimanjaro – Tanzania: Two sides of the coin. In P. D. Rwelamila (Ed.), *20th International Academy of African Business and Development conference proceedings:* (pp. 241–254). International Academy of African Business and Development. https://www.researchgate.net/profile/Kezia-Mkwizu-2/publication/333032731.

Talle, A. (2019). Gender dynamics in Maasai pastoralism: Women's roles and limitations in agricultural decision-making. *The Journal of Modern African Studies*, *45*(3), 231–248.

Taylor, R. (1991). Information Use Environments, In Dervin Brenda: Voigt. *Progress in Communication Sciences*, *10*.

The United Republic of Tanzania. (2013). *2012 Population and Housing Census*.

URT. (2016). Agricultural Sector Development Strategy-II 2015/2016-2024/2025. *United Republic of Tanzania*, 95. http://extwprlegs1.fao.org/docs/pdf/tan160643.pdf.

World Bank. (2021). *Main messages: Data for better lives*. The World Bank: Washington, DC.