



Effect of Social Factors: Religion, Gender, and Cultural Beliefs on Cotton Production Sustainability in Kisumu County, Kenya

Omollo Rose Agina Atieno, Peter Gutwa Oino & Godfrey Ungaya
Department of Sociology, Gender and Development Studies,
School of Arts and Social Sciences, Kisii University
Email: roseagina@yahoo.com

Abstract: Cotton production in Kenya has a long history, with its roots well-established before the country's independence in 1963. Gender, religion, and cultural beliefs significantly influence access to resources and the sustainability of cotton farming. This study aimed to assess the impact of these social factors on the sustainability of cotton production in Kisumu County, Kenya. Anchored on functionalism theory, the study utilized a mixed-method research design, combining descriptive and correlational approaches. The target population included 600 cotton farmers aged 18 to 65, with simple random sampling employed to select the sample. Data collection was carried out using questionnaires, in-depth interviews, key informant interviews, and focus group discussions. The findings revealed that gender disparities, religious beliefs, and cultural norms had statistically significant effects on the sustainability of cotton farming. Women faced challenges in accessing farming resources, while religious and cultural beliefs sometimes hindered the adoption of modern farming techniques. The study recommends that the government initiate community development programs and sensitization efforts to address negative cultural practices and promote gender equity in cotton farming.

Keywords: Social factors, Religion, Gender, Sustainability, Cotton production, Development

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1. Introduction

Cotton production in Kenya has a well-documented history, with records predating the country's independence in 1963. The early years of cotton cultivation were characterized by fluctuations in production, heavily influenced by colonial policies and socioeconomic factors (Fear, 1956; De Wilde, 1967). Before independence, British colonizers owned large tracts of land, especially in coastal regions, where cotton thrived due to favorable climatic conditions and proximity to Mombasa port (Hay, 1972). However, production was hindered by minimal

government support for indigenous farmers and a focus on food crops like maize by local communities such as the Taita (Brett, 1973). These factors contributed to the erratic growth of the cotton industry, which struggled to gain momentum among smallholder farmers.

Agriculture remains the backbone of Kenya's economy, contributing significantly to food security, employment, and poverty reduction (GoK, 2010). Approximately two-thirds of the population depend on agriculture for their livelihoods (KARI, 1998). Despite the critical role agriculture plays, gender inequalities persist in resource access and decision-making, with men typically engaging

in land clearing and oxen plowing, while women are responsible for most labor-intensive tasks, such as planting and harvesting (NEF, 2006). These gender dynamics significantly impact agricultural productivity and sustainability, particularly in cotton farming.

Cotton farming in Kisumu County has deep roots, dating back to the 1960s with the establishment of Kisumu Cotton Mills (KICOMI) in 1964. This venture, a collaboration between the Khatau group of India and the Development Finance Company of Kisumu, was a major economic driver, providing jobs and a market for local cotton producers (Macleki, 2019). KICOMI's success spurred the development of ancillary industries such as tailoring and contributed to poverty reduction in the region. However, the sudden closure of KICOMI had a profound negative impact on the local economy, leaving cotton farmers without a reliable market and undermining regional development (Macleki, 2019).

Today, cotton farming in Kisumu County faces numerous challenges, including social and economic barriers. Government interventions, such as the distribution of improved seed varieties and fertilizers, were short-lived and insufficient to sustain long-term production. Research initiatives aimed at improving cotton yields have also been underfunded, limiting their effectiveness (KARI, 2010). Cotton production in Kenya currently operates at only 21% of its potential, constrained by factors such as erratic weather, poor seed quality, inadequate extension services, and high input costs (CODA, 2013). Addressing these challenges requires a deeper understanding of the social factors that influence cotton farming, particularly gender, religion, and cultural beliefs, which shape access to resources and farming practices.

1.1 Objective of the Study

The aim of this study was to assess the effect of social factors—religion, gender, and cultural beliefs—on the sustainability of cotton production and development in Kisumu County, Kenya.

2. Literature Review

Despite extensive research on gender roles in agriculture, particularly in the cotton production sector, significant knowledge gaps persist, particularly regarding the specific barriers women face in accessing resources, decision-making roles, and labor rights. Most studies have focused on gender-disaggregated labor contributions (Kaya & Demirtaş, 2021; Awan et al., 2023), but few have delved into the systemic, multi-dimensional challenges that women encounter within the socio-cultural, economic, and environmental contexts of cotton production.

For example, existing research highlights how women perform most of the manual labor in cotton farming, such as picking and weeding (Bhalerao et al., 2022), yet they are often excluded from critical decision-making processes, including land ownership and crop management (Rahman, 2021). However, these studies tend to generalize women's experiences across regions and countries, without accounting for the variations in access to technology, infrastructure, financial resources, and social capital that may significantly influence these outcomes. This lack of nuance contributes to an incomplete understanding of the specific constraints that women face, particularly in marginalized regions such as sub-Saharan Africa and South Asia, where cultural norms and economic disparities are more pronounced (Masanjala & Rynn, 2022).

Furthermore, while health impacts due to pesticide exposure have been explored (Bashir et al., 2021), few studies have explicitly addressed the long-term socio-economic consequences of this exposure on women's livelihoods and agricultural productivity. The focus tends to be on immediate health risks, with less attention to the indirect impacts on their ability to participate fully and effectively in cotton production. The intersection of gender, health, and agriculture remains underexplored in the literature, limiting our understanding of how to address these issues holistically.

2.1 Theoretical Framework

2.1.1 Functionalism theory

Functionalism, as articulated by theorists like Van den Berghe (1963) and Émile Durkheim, posits that all aspects of society serve specific functions and contribute to the overall stability and survival of the social system. This theory is particularly relevant to understanding the dynamics of sustainable cotton production in Kisumu County, as it emphasizes the interdependence of various social, economic, and cultural factors within the agricultural ecosystem. In the context of this study, the functionalist perspective allows for a systematic analysis of the socio-economic factors influencing sustainable cotton production. Since cotton farming is a communal practice, various stakeholders—farmers, agricultural extension workers, and local institutions—play critical roles. Each of these groups serves a purpose that contributes to the overall health of the cotton production system. For example: Their agricultural practices and adherence to cultural norms directly impact productivity and sustainability. Their involvement ensures that traditional knowledge is preserved while adapting to modern techniques. The functionalist framework enables the exploration of how gender dynamics shape the labor force in cotton farming. Women's roles in cotton production—often as primary

laborers—can be viewed as indispensable for meeting the agricultural demands of the community. Understanding these roles can highlight the need for gender-sensitive policies that enhance women’s participation and address the barriers they face (Kingsbury & Scanzoni, 2009).

Functionalism recognizes that cultural and religious values shape agricultural practices and attitudes toward sustainable farming. For instance, specific religious beliefs may dictate agricultural seasons or practices, influencing how farmers approach cotton cultivation. This study aims to uncover how these beliefs serve functional roles in supporting community cohesion and environmental stewardship.

The identification of socio-economic factors that affect sustainable cotton production can be guided by the functionalist assumption that these factors are crucial for the long-term survival of the cotton farming community in Kisumu County. By analyzing how gender, religion, and cultural beliefs influence agricultural practices, the study can provide insights into: How socio-cultural factors facilitate or hinder adaptation to challenges such as climate change or market fluctuations, thereby ensuring the community’s resilience in cotton farming. Understanding how traditional practices and modern techniques coexist can reveal indispensable strategies for resource management that support sustainable cotton production.

In summary, the functionalism theory serves as a foundational framework for understanding the socio-economic dynamics of sustainable cotton production in Kisumu County. By examining the roles of various stakeholders and the impact of gender, religion, and cultural beliefs, the study aims to highlight the indispensable aspects of cotton farming that contribute to the community’s long-term sustainability. Despite its criticisms, functionalism provides a structured approach to exploring how different social phenomena function collectively, reinforcing the need for a comprehensive understanding of agricultural practices within their socio-cultural context.

3. Methodology

This study was conducted in five cotton-growing sub-counties of Kisumu County—Nyakach, Nyando, Kisumu East, Muhoroni, and Seme—selected for their historical significance in cotton farming and current challenges in achieving sustainable production. A mixed-methods design, incorporating both descriptive and correlational research approaches, was employed to capture comprehensive insights into the socio-economic factors influencing sustainable cotton production. The descriptive aspect enabled detailed profiling of respondents, while the correlational component facilitated the examination of

potential cause-and-effect relationships between socio-economic factors and sustainability outcomes.

The target population comprised 600 cotton farmers in Kisumu County, as noted in the CODA Report (2015). In addition to farmers, the sample included key stakeholders such as staff from the Kenya Agricultural and Livestock Research Organization (KALRO), the Cotton Development Authority (CODA), cooperative department officers, administrative staff, and agriculture extension personnel. To determine the sample size, a purposive sampling technique was utilized, leading to the selection of 293 respondents. A simple stratified sampling procedure was then employed, where the population was divided into strata based on characteristics such as age, gender, and role in cotton production to ensure representation of diverse segments within the population. This sampling method allowed for a balanced representation of various perspectives in the cotton farming community.

Data collection involved a combination of structured questionnaires, key informant interviews, and focus group discussions (FGDs) to enrich the findings and provide a holistic view of the socio-economic factors affecting sustainable cotton production. Specifically, 293 questionnaires were distributed to senior and middle cadre staff of cotton production enterprises in Kisumu County. Qualitative insights were gathered through key informant interviews with selected stakeholders and FGDs involving farmers and cooperative members. For data analysis, both descriptive and inferential statistical techniques were employed. Descriptive statistics provided an overview of demographic characteristics and trends, while inferential statistics facilitated the exploration of relationships between socio-economic factors and sustainability outcomes. This mixed-methods approach was chosen for its ability to provide a comprehensive understanding of the complexities within the agricultural sector, ensuring that the study's findings contribute valuable insights into the dynamics of cotton farming in Kisumu County.

4. Results and Discussion

This section delves into the effects of social factors—specifically gender, religion, and cultural beliefs—on the sustainability of cotton production and development in Kisumu County, Kenya. Understanding these social dynamics is crucial, as they play a significant role in shaping agricultural practices, resource access, and decision-making processes within farming communities. The interplay of these factors can either facilitate or hinder the adoption of sustainable practices in cotton farming, thereby influencing the overall viability and resilience of this agricultural sector. By analyzing the collected data through descriptive and inferential statistical methods, we aim to uncover the nuanced relationships between these

social determinants and the sustainability of cotton production.

The data presented in **Table 1** provides a comprehensive overview of the gender-specific production roles in cotton farming within Kisumu County, Kenya.

4.1 Gender-specific Production Roles in Cotton Farming

Table 1: Gender Production Roles in Cotton

Cotton Input Farming	Male	$x-\bar{X}$	$(x-\bar{X})^2$	Female	$x-\bar{X}$	$(x-\bar{X})^2$
Ploughing	118	16	256	96	-16	256
Planting	64	-38	1444	150	38	1444
Weeding	86	-16	256	128	16	256
Harvesting	68	-34	1156	146	34	1156
Post-Harvest Handling	54	-48	2304	160	48	2304
Identifying Markets	154	52	2704	60	-52	2704
Marketing	171	69	4761	43	-69	4761
Total	715	-	11881	783	-	29681

Source: Survey data (2019)

The analysis of gender production roles reveals critical insights into the socio-economic dynamics influencing cotton farming in Kisumu County. The predominant involvement of women in various agricultural processes, coupled with their marginalization in decision-making and access to resources, highlights a paradox. While women are integral to cotton production, their contributions are often

undervalued, limiting their capacity to influence sustainable agricultural practices. Additionally, the influence of retrogressive cultural practices, as indicated in the qualitative data from focus group discussions, underscores the systemic barriers women face, including land ownership restrictions and gender-based violence.

Table 2: Descriptive Statistics for Gender Issues

Variable	Mean	Std. Deviation	Skewness	Kurtosis
Consciousness of one's sex	4.1728	0.72418	-1.181	1.668
Sex-based social characteristics	4.2222	0.70489	-0.978	0.345
Gender determining role in agriculture	4.0278	0.72241	-0.553	-0.147

Source: SPSS Statistic Analysis Survey data (2019)

Table 2 presents descriptive statistics that highlight key dimensions of gender issues among cotton farmers in Kisumu County. The high mean values for "Consciousness of one's sex" (4.17) and "Sex-based social characteristics" (4.22) suggest a heightened awareness of gender roles within the agricultural context. This consciousness may reflect a growing recognition among farmers of the

importance of gender dynamics in agricultural practices, potentially influenced by local, national, and global discourses on gender equality.

The skewness values for these variables are negative, indicating that the data distribution leans towards higher consciousness and awareness levels, while the kurtosis

values suggest a relatively flat distribution, signaling moderate variations among respondents. In contrast, the "Gender determining role in agriculture" variable has a slightly lower mean (4.03) and a skewness of -0.553, implying that while awareness of gender roles exists, it may not be uniformly experienced or recognized across all participants. The kurtosis of -0.147 indicates a tendency towards a more uniform distribution of responses for this variable, suggesting that respondents may not diverge significantly in their perceptions of gender roles in agriculture. These findings resonate with broader trends observed in other regions. Research from the Food and Agriculture Organization (FAO) has consistently demonstrated that heightened gender awareness often correlates with increased productivity and sustainability in agricultural practices. For instance, a study in sub-Saharan Africa noted that women farmers who reported higher awareness of their rights and roles were more likely to adopt sustainable practices and participate in decision-making processes (FAO, 2020). This parallels the findings in Kisumu County, where increased consciousness around gender roles is likely to foster more equitable and sustainable cotton production.

Moreover, the global perspective also highlights that awareness of gender issues does not always translate into structural changes within agricultural systems. A report by the International Fund for Agricultural Development

(IFAD) indicated that while awareness of gender roles is improving, systemic barriers such as limited access to land, credit, and resources persist in many regions, including parts of Africa (IFAD, 2022). This observation aligns with the qualitative findings from Kisumu County, where cultural norms and practices hinder women's full participation in agricultural decision-making despite their awareness of gender dynamics.

The high levels of awareness observed in the study suggest a readiness among the farming community in Kisumu to engage with gender issues. This consciousness can be leveraged to foster more inclusive agricultural practices. Policymakers and agricultural organizations should focus on creating interventions that not only build on this awareness but also address the systemic barriers that women face in the agricultural sector.

4.2 Socio-Cultural Influences on Cotton Production

The degree to which cultural practices influence cotton production in the County can be presented in proportionate form as in figure 1 below. It is established that retrogressive cultural practices influence the role of male gender in cotton production more than the female gender (88%).

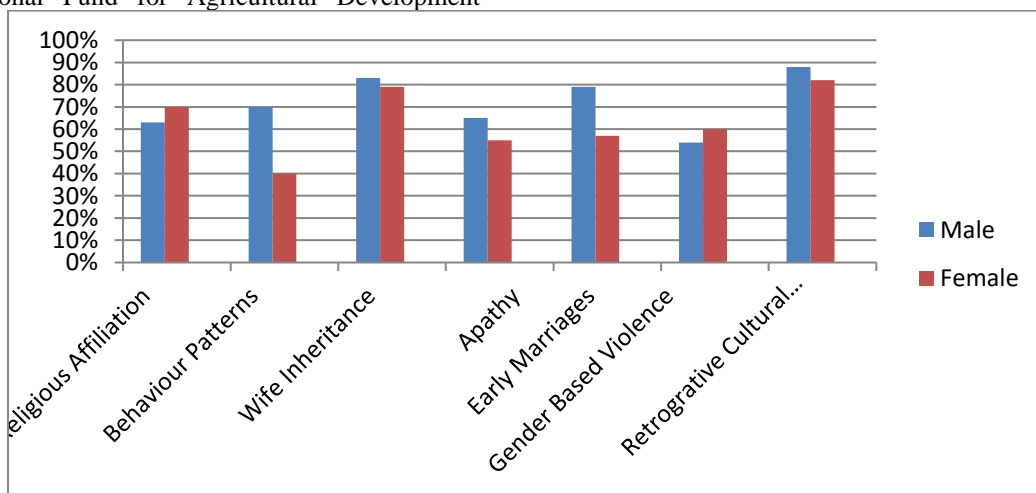


Figure 1: Percentage Socio- Cultural Influences on Cotton Production

The analysis of socio-cultural influences on cotton production in Kisumu County reveals deeply entrenched beliefs and practices that perpetuate gender inequalities. As indicated in Figure 1, the retention of retrogressive cultural values-such as wife inheritance, early marriages, and gender-based violence-has systematically marginalized women, youth, and disabled individuals. Notably, the prevalence of gender-based violence reported by 60% of female respondents underscores the urgent need for

targeted interventions to address these issues. The findings suggest that cultural norms not only hinder women's participation in cotton production but also contribute to an environment where gender-based violence remains prevalent and underreported.

The challenges faced by small-scale farmers, particularly women, are compounded by socio-cultural constraints around land ownership. Focus group discussions

highlighted that land is traditionally inherited by male children, effectively excluding female children from ownership. This practice creates a cycle of insecurity for women, limiting their ability to make decisions regarding agricultural practices and hindering their access to credit facilities that require land as collateral. The structural nature of these barriers highlights the critical need for interventions that address both cultural attitudes and practical resources.

Relating these findings with existing literature reinforces the assertion that socio-cultural beliefs significantly impact agricultural productivity and gender equity. A report by the United Nations Food and Agriculture Organization (FAO, 2020) emphasizes that gender disparities in land ownership are not unique to Kisumu County but are a common barrier to women's empowerment in agricultural sectors globally. The FAO suggests that empowering women through equitable land access can lead to enhanced productivity and food security, aligning with the needs identified in Kisumu.

Further corroboration comes from studies by the International Fund for Agricultural Development (IFAD, 2022), which indicate that addressing gender-based violence and promoting land rights are critical for achieving gender equity in agriculture. These global perspectives resonate with the findings from Kisumu, where cultural practices and patriarchal norms restrict women's agency in farming. Additionally, the negative implications of early marriages and gender-based violence on women's agricultural involvement have been documented in various regions, highlighting a pattern that transcends local contexts.

5. Conclusion and Recommendations

5.1 Conclusion

In conclusion, the findings from Kisumu County reflect broader global trends in gender awareness and agriculture. By addressing the structural inequalities that persist despite high levels of consciousness, stakeholders can promote a more equitable agricultural landscape that benefits all members of the community. At the same time, addressing the socio-cultural dimensions of gender inequality in cotton production is vital for fostering sustainable agricultural practices and improving the livelihoods of all farmers in Kisumu County. By promoting gender equity, the region can enhance its agricultural productivity and resilience, contributing to broader economic and social development goals.

5.2 Recommendations

Recommendations include:

1. **Policy Advocacy:** Advocate for policies that facilitate women's access to resources and decision-making platforms within agricultural cooperatives and associations.
2. **Community Engagement Initiatives:** Develop community programs that encourage discussions around gender roles in agriculture, aiming to shift cultural perceptions and practices that limit women's contributions.
3. **Community Awareness Programs:** Initiate programs aimed at changing perceptions around gender roles in agriculture and addressing harmful cultural practices.
4. **Support Services for Victims of Gender-Based Violence:** Establish support mechanisms for women experiencing violence, ensuring they have access to legal assistance, counseling, and safe shelters.
5. **Gender-Sensitive Agricultural Training:** Provide training that emphasizes the role of women in agriculture and equips them with skills to enhance productivity, alongside access to resources and credit.

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