



ISSN 2278 – 0211 (Online)

## Influence of Social Cultural Factors on Sweet Potato Production among Agro-Pastoralists in Samburu County, Kenya

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### **Abstract:**

*The prevailing socio-cultural practices have the power to influence adoption of agricultural technology. Sweet potato is one of the world's highest yielding crops in terms of production per unit area, exceeding that of a major cereal like rice. The roots and leaves of sweet potatoes are consumed while its vines are used as animal feed in many parts of the world, yet it remains a survival crop which people eat, when they are starving. The main problem amongst agro-pastoralists is low production of the sweet potatoes. The aim of the study was to assess influence of social cultural factors on sweet potato production among agro-pastoralists in Samburu. Household-level surveys were conducted to obtain data from 100 agro-pastoralists purposively selected. Qualitative data were obtained through Focus Group Discussion and Key Informant Interviews. Data was analyzed using descriptive statistics such as percentages and frequency distributions. The Statistical Package for Social Sciences (SPSS) was used to analyze the data. The study found that agro-pastoralists had low literacy level. Overall majority of the agro-pastoralists at 89 percent strongly disagreed that community tradition was a hindrance to sweet potato production. The study demonstrated that tradition was not a barrier to the production of sweet potato. About 49 percent of them strongly disagreed and 45 percent also disagreed that production of sweet potatoes is associated with poor persons. Almost 68 percent of the respondents strongly disagreed, that they have been looked down because of cultivating sweet potatoes, while 27 percent of them indicated that they disagreed with the same statement. The results indicated that social-cultural factors do not hinder sweet potato production by agro-pastoralists. In conclusion selected social-cultural factors do not prevent sweet potato production by agro-pastoralists. On recommendation, more studies need to be done on commercialization of sweet potato cultivation. Due to low level of education of the respondents, practical demonstrations are a requirement to be considered.*

**Keywords:** Influence, social cultural factors, sweet potato production, agro-pastoralists

### **1. Introduction**

Sweet potato is one of the world's most important food crops and the amount produced is similar to or slightly higher than that of cassava. It is cultivated in the tropical and sub-tropical to temperate zones of the Far East and United State of America (U.S.A), making it world's number one tuber crop (Smith, Stoddard, Shankle, & Schultheis, (2009). It is also ranked seventh as world food crop and is likely to increase in importance in future due to its cultivation by farmers, who are facing chronic food shortage due to unreliable weather and falling purchasing power (Kuehne, lewellyn, Pannell, Wilkinson, Dolling, Ouzman, & Ewing, (2017).). It provides more edible energy per hectare than wheat, rice or cassava. Sweet potato requires fewer inputs and less labour than other staple crops. It tolerates marginal growing conditions such as dry spells and poor soils (Mohanraj & Sivasankar, 2014). This makes sweet potato particularly suitable as a crop for households threatened by diseases such as Acquired Immunodeficiency Syndrome (AIDS). The crop has an annual production of more than 100 million metric tons ranking thirteenth globally in production value among agricultural commodities (Truong, Avula, Pecota, & Yencho, 2018).

According to Vanclay (2004) adoption of practices that take place in a social context such as farming is not a technical activity, but a social-cultural practice, which becomes a way of life. Traditional beliefs, negative attitudes towards production, strong cultural systems, harsh climatic conditions and the worsening insecurity have largely contributed to low levels of community development (Samburu Pastoralists Livelihood Improvement Project, 2016). Despite the benefits associated with crop, production, access to communal land for production purposes among the pastoralists community is

based on complex social, cultural, and historical norms and conditions that historically have maintained flexible access to resources across space and time (Boone, Burnsilver, Thornton, Worden, & Galvin, (2005). Bebe and Magembe (2012) reported that influence from the neighborhood significantly and negatively affected the extent of shift from pastoral to agro-pastoral farming systems. The study revealed that as farmers interacted more with their neighbours, the probability of allocating more land for crop production declined by 12.7percent So, depending on who forms the neighborhood, farmers could decide to allocate more or less land towards sweet production. Bebe and Magembe, (2012) argued that as farmers interact more with their neighbours and outside world, they become more able to assess the relevance of new technologies and ideas thus they exercise a choice. The purpose of the study was to find out the influence of socio-cultural factors on sweet potato farming amongst the agro-pastoralists.

## 2. Methods

### 2.1. Study Area

The study was undertaken in Poro ward in Samburu Central Sub-County, Samburu County, where World Vision organization distributed 7800 sweet potato vines in 2010 and 2011 to agro-pastoralists. Samburu County is Arid and Semi- Arid land with annual rainfall of between 250 - 1250 mm and temperatures range between 24<sup>o</sup>C and 33<sup>o</sup>C (County Samburu Integrated Development, 2018).

### 2.2. Survey Design, Population, and Sampling

The sampling frame of 139 agro-pastoralists who were given sweet potato vines was obtained from the Department of Agriculture, Samburu County Report (2009). According to Kathuri and Pals (1993), for a population of 140 the appropriate sample size is 103. In this study with a population of 139 agro-pastoralists, the sample size was 100. A descriptive survey was used in to collect data in this study. Purposive sampling was used to select 100 farmers from the existing farmers groups (6) that received sweet potato vines. Proportion allocation was used to determine the number of respondents to be sampled in each group. Then simple random sampling was carried out to select respondents from each group. Using purposive sampling technique, 8 local leaders were selected for focus group discussions. For the key informant interviews, census was used to select the 5 agricultural extension agents, who were the trainers of agro-pastoralists on agronomic traits of sweet potatoes. The main thematic area covered during Focus Group Discussion (FGDs) and key informant interviews (KII) was influence of socio-cultural factors on sweet potato production

### 2.3. Data Collection Tools

#### 2.3.1. Structured Household Questionnaires

Structured household questionnaires were used to obtain information about participants' socio-demographic and socio-cultural factors influencing sweet potato production. Focus group discussion and interview guides were used to collect qualitative data.

#### 2.3.2. Data Collection

Qualitative data were analyzed using Statistical Package for Social Sciences (SPSS) version 25. Data on agro-pastoralists socio-demographic characteristics were analysed using descriptive statistics (percentages and frequency distributions). To assess socio-cultural factors influencing sweet potato production, Likert scale was used to rate the statements on scale of 1 to 5, that is 1=Strongly Disagree (SD), 2=Disagree (D), 3=Neutral (N), 4=Agree (A), and 5=Strongly Agree (SA). The qualitative data were analyzed using the thematic content analysis method by identifying similarities, differences, and trends between the individuals and group responses. Common themes that emerged from each individual and throughout the interviews were identified as well as any differences in responses based on the demographics. The findings from the FDGs and KII were then triangulated onto the household survey data to provide in-depth understanding of the concepts studied.

## 3. Results

### 3.1. Socio-Demographic Characteristics of the Study Population

Socio-demographic characteristics of the study participants are shown in

. The household heads for majority of the agro-pastoralists were female 92 percent .The age range of 40-50 years was common for majority of respondents at 42 percent, which implied that middle age respondents practiced farming more, followed closely by 29-39, who are considered energetic group for farm activities at 37 percent. On level of education majority of respondents at 63 percent had no formal education Most of the respondents were married at 82 percent while the family sizes with a range of 5-10 persons were at 74 percent.

Demographic Group	Category	Percent
Gender	Male	8
	Female	92
Age	18-28	7
	29-39	37
	40-50	42
	51-61	10
	>61	4
Level of Education	No education	63
	Primary	26
	Secondary	8
	Tertiary	4
Marital status	Married	82
	Separated	2
	Widowed	9
	Single	7
Family size	<5	10
	5-10	74
	11-15	16

Table 1: Demographic Characteristics of Respondents

### 3.2. Community Tradition and Sweet Potato Production

The respondents at 89 percent strongly disagreed that community tradition was a hindrance to sweet potato production, followed by 9 presents of them, who disagreed, while both neutral and strongly agreed were at one percent each (Figure 1).

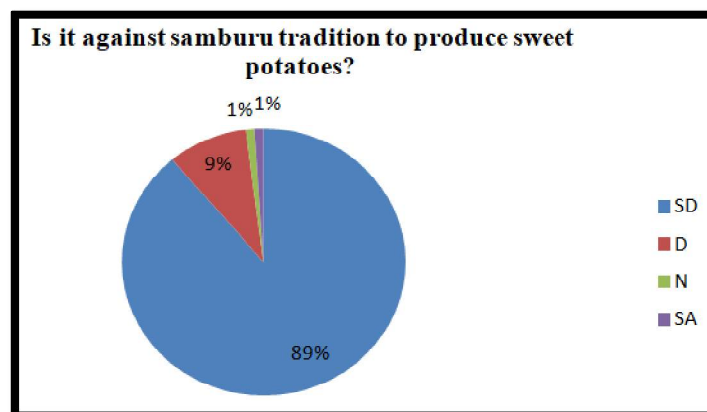


Figure 1: Tradition and Production of Sweet Potatoes

### 3.3. Production of Sweet Potatoes Is Associated with Poor Persons

The views of respondents on growing of sweet potatoes are noted in Figure 2. The respondents were asked if production of sweet potatoes was associated with poor persons. About 49 percent of them strongly disagreed, while 45 percent disagreed and then 3 percent were neutral. Strongly agreed were at 2 percent and agreed at one percent.

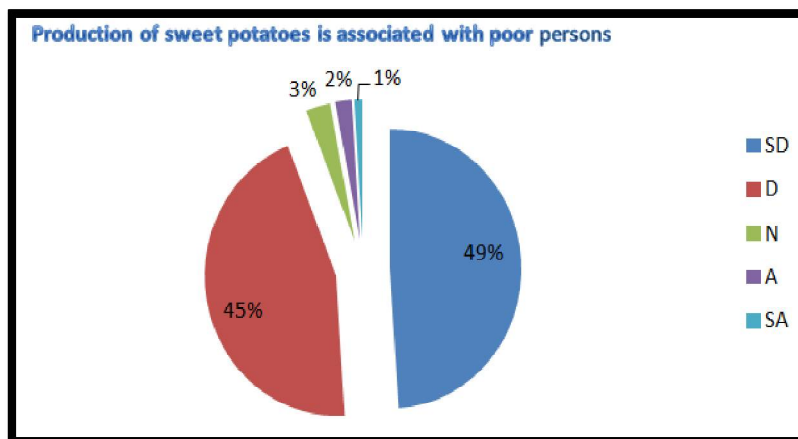


Figure 2: Sweet Potato Production and Social Status

### 3.4. I Am Looked Down Upon Because of Producing Sweet Potatoes

The findings show that 68 percent of the respondents strongly disagreed, that they have been looked down because of cultivating sweet potato, while 27 percent of them indicated that they disagreed with the same statement. Then one percent of respondents each indicated agreed and neutral, while the remaining three percent of them stated strongly agreed, as shown in Figure 3.

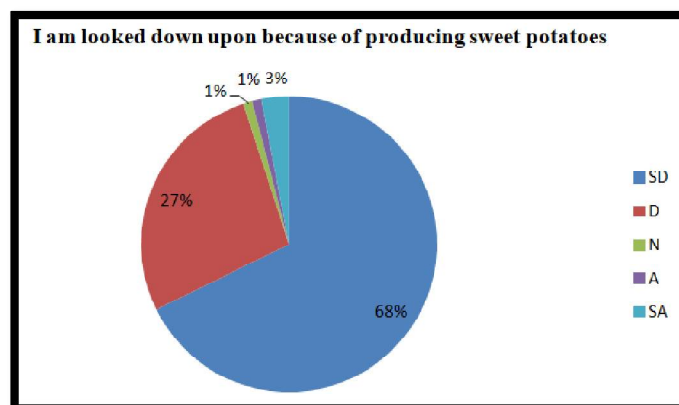


Figure 3: Perception towards Producers of Sweet Potatoes

### 3.5. Value for Livestock Compared to Sweet Potato Production

Agro-pastoralists kept livestock and tilled land, but the rate of livestock reared was higher more than sweet potato cultivation, as shown in Figure 4. The study found that 28 percent of respondents were neutral, and then 22 percent and 21 percent agreed and disagreed respectively. Strongly agreed were at 17 percent, while strongly disagreed constituted 12 percent.

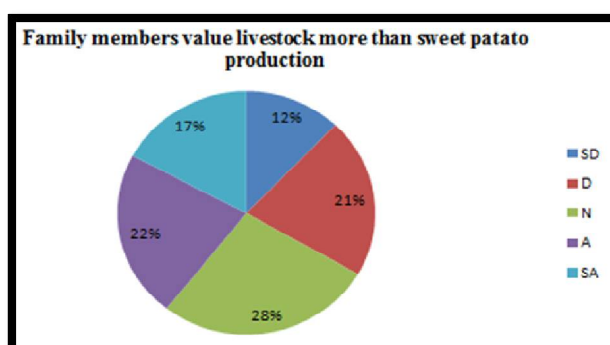


Figure 4: Family Value of Livestock More Than to Sweet Potato Production

## 4. Discussion

The findings demonstrated that community's tradition did not interfere with the production of sweet potato. In Focus Group Discussion (FGD) the respondents stated that sweet potato tubers were like an indigenous tuber (*Njas*) in the wild which is eaten during prolonged drought. Therefore, low production of sweet potatoes could be attributed to other reasons rather than the people's values and beliefs. The study findings indicated that community tradition was not a barrier to the production of sweet potato. The findings also by Oywaya-Nkurumwa, Mwangi, and Kathuri (2011), stated

that social and cultural factors were a major concern to adoption of agro-pastoralism among the Maasai people, who were akin to Samburu agro-pastoralists.

During FGDs the respondents revealed that sweet potato tubers and leaves were used during prolonged drought as food especially for herders, who do not come for lunch. In a meta-analysis study by Daryanto, Wang and Jacinthe (2016), sweet potato yields more protein and calories per unit area than either maize or Irish potato.

## 5. Conclusions and Recommendations

The results indicated that the selected social-cultural factors do not prevent sweet potato production by agro-pastoralists. From the results, the respondents indicated that community customary was not a barrier to sweet potato cultivation. It also stated that cultivation of sweet potatoes was not associated with poverty. Agro-pastoralists were not despised for producing sweet potatoes. Majority of the respondents' rate livestock more compared to sweet potato production. This might have hindered sweet potato production.

The recommendation stated that more studies need to be done on commercialization of sweet potato cultivation in agro-pastoral system. And also due to low level of education of the respondents, practical demonstrations are a requirement to be considered.

## 6. Acknowledgments

We acknowledge my family, Post graduate fraternity, staff and students of Department of Applied Community Development Studies, especially my fellow student Colleta Awino. The Samburu County government, Ward Agriculture Officers, Administrators and agro-pastoralists, who participated in the study.

## 7. Conflict of Interest

The authors declared that they do not have any conflict of interest.

## 8. Ethical Approval

This study protocols and procedures were reviewed and approved by the Egerton University Research Ethics Committee. Permission to conduct the study was obtained from Kenya National Commission for Science, Technology, and Innovation (NACOSTI/P/17/30477/14813), relevant Authorities at National and County Government, Sub County and wards.

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