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Influence of Seed Cotton Marketing on Cotton Production among Smallholder Farmers in Bura Irrigation and Settlement Scheme, Kenya

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Abstract

Kenyan smallholder cotton production has remained low despite the spirited effort to revive the sector. Several factors combined seem to be responsible for this perpetual low production. Among the factors are constraints ranging from, inadequate extension services, limited access to information on production and poor marketing systems. The purpose of this study was to investigate how seed cotton marketing influence cotton production among smallholder farmers in Bura Irrigation and Settlement Scheme. The study utilized descriptive survey research design to collect data from farm households, while secondary data was collected from government agencies in the Scheme. The study population was all smallholder cotton farmers in Bura Irrigation Scheme. Proportionate simple random sampling method was used to select 120 farmers who were included in the study. Descriptive and inferential statistics was used to analyze the data using Statistical Package for Social Science version 20.0. The findings showed that on channels of marketing, all the respondents sell their seed cotton individually.

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All of the respondents admitted that seed cotton brokers exist within the scheme and 67% indicated that they have sold seed cotton to brokers. 63% indicated that they do so since brokers are usually available to buy.

80% of the respondents indicated that they do encounter several challenges during marketing. 61% of the respondents recommended that a ginnery should be established within the Scheme. 98% of the respondents stated that the current price of seed cotton offered in the market has led to the decline in cotton production. Analysis of secondary data revealed that an increase in the price of seed cotton would result into an increase in cotton production. The study revealed that the selling price of seed cotton had a significant impact on cotton production. Lack of storage and ginning facilities enhanced the activities of brokers.

Key Words: Cotton Marketing; Cotton Production; Cotton Seeds; Seed Cotton; Smallholder.

1. Introduction

Cotton is the largest revenue earning of the non-food crops produced in the world. Its production and processing provide some or all of the cash income of over 250 million people worldwide, including almost 7 percent of the available labor force in developing countries [6]. These activities are becoming highly concentrated over time; today, 77 percent of global cotton output and 73 percent of the cotton hectares are accounted for by China, the United States, India, Pakistan, and the Central Asian Republics. India accounts for approximately 21 percent of the world cotton area but the average productivity of cotton is markedly low, at about 293 kilograms of lint cotton per hector compared to 600 kg per hector of world average per year [13].

Cotton production faces crucial challenges such as: escalating costs of production, low cotton prices, inefficient pest management, stickiness, yield variability within the same location, late cotton picking, subsidies in the developed countries, diminishing production capital and competition from other crops. These obstacles diminish the benefits from continuing cotton cultivation [6]. Even though the challenges are numerous, all the parties involved in cotton production are optimistic that Kenyan cotton will regain and even surpass its former position through the enhancement and implementation of site-specific and low-input technologies. Significant improvements in institutional, policy and financial aspects must also be made in order to achieve competitiveness in the global economy. These challenges have to be taken up by the whole spectrum involved in the cotton sector, that is, researchers, extension workers, production agronomists, economists and policy makers [10].

According to ICAC [7], poor yields from smallholder cotton in Africa have been a long standing problem that has not been greatly altered by release of new varieties or by other recommendations made on the basis of research findings and consequently there seems to be a number of problems in translating the outputs from research into the farmers' fields; farmers are consistently not taking up the recommendations. In response to African Growth and Opportunity Act (AGOA) and the expectation of declining cotton subsidies in developed countries, a number of Sub-Sahara African countries are embarking on programmes to stimulate cotton production. The focus is mainly on the provision of subsidized seed, fertilizer and insecticide but missing factors are both the development of sustainable integrated crop management practices and similarly sustainable

mechanisms for the delivery of technical support services to the producers [6]. In South Africa, relatively low prices, high input costs, exchange rates, cheap import of cotton fibre and international subsidies are all factors affecting cotton production negatively [4].

The Kenya's cotton sector performance declined substantially in the 1990's at the height of trade liberalization; both cotton production and the textiles garments industry suffered due to continued synthetic fibre competition, diminishing world prices, introduction of cheap imports of second hand clothes and diminished cotton profitability aggravated by inefficiencies in the production system and supply side constraints . The decline in cotton production in the last two decades has also coincided with increase in poverty levels in areas designated as major cotton belts. The gradual cotton decline has also affected other parts of the value chain including ginners, textile mills and manufacturers [8].

Cotton in Kenya is mainly grown by small-scale farmers in marginal and arid areas, on small land holdings. It is estimated that Kenya currently has 90,000 small-scale cotton farmers compared with over 200,000 farmers in the mid-1980s when the industry was at its peak [1]. The Cotton Board of Kenya estimates that countrywide, 350,000 hectares is suitable for rain-fed cotton production with the potential to produce about 260,000 bales of lint annually, and 34,500 hectares for irrigated cotton with the potential to produce 108,000 bales of lint annually. However, only about 25,000 hectares is currently under the crop, and the total annual lint production stands at only about 20,000 bales [1].

Despite these efforts, issues affecting cotton production have not been adequately addressed as most of the cotton production regions are yet to embark on its production despite the local markets available for the same. Given that the average yield is only 500 kg/acre profitability would be greatly improved even with production at 50% of the yield potential of the commercial varieties [14].

Kenyan cotton is produced under both irrigated and rainfed conditions. In Bura Irrigation and Settlement Scheme where the study was conducted, cotton is the major crop which is grown in rotation with maize [12]. According to [4], by 1985, Bura Irrigation Scheme was responsible for 45% of the total country's cotton production where on farm average production stood at 3,600 kg/acre of seed cotton and thus, the Scheme was recognized as the pillar of cotton sector in Kenya. The current average seed cotton production in the scheme stands at 1,000 kg/acre against the potentials of 4,000 kg/acre under irrigation of the current HART 89M variety grown [15]. Currently, the area under cotton production stands at 1,800 acres against the potential of 16,000 ha of land which has been opened up by National Irrigation Board and is under irrigation [12].

One strategy for lowering the cost of cotton production would be to increase yields, which currently stands at about 21% of the potential for the varieties grown in Kenya [9]. However, according to [1], cotton production in Kenya is currently faced by constraints ranging from erratic weather patterns, weak cooperative movement, high cost of inputs, lack of rural credit, poor seed quality, inadequate extension services and inappropriate extension approaches and poor marketing systems [2], further indicated that efforts to release a new variety of genetically modified cotton seeds to farmers has been halted by the government's ban on genetically modified organisms, consequently farmers have to wait a little longer to benefit from the recent break through.

2. Research Methodology

Descriptive survey research design was used for the study. Descriptive survey research design was appropriate for this study because it allows one to obtain information concerning the current status of the phenomena to describe 'what exists' with respect to variables or conditions [11].

The study was carried out in Bura Irrigation and Settlement Scheme of Tana River County, Kenya. Bura Irrigation Scheme is located in Tana River County. The scheme is situated on the right bank of River Tana within the lower Tana River basin. The population for this research was all cotton producing households in Bura Irrigation and Settlement Scheme. A sample of 120 farmers was sampled for study

. A sample size of 120 respondents was considered appropriate for the study as it way above the minimum recommended sample size of 100 in consideration of the level of accuracy required and the accessible population [11].

The extra number of 20 households was to cater for dropouts and non-respondents during the study. Proportionate simple random sampling was used to select the farmers to be studied from each of the Villages. With the aid of table of random numbers, participating farmers were identified where the sampling unit was the head of the household.

A questionnaire was developed along the objectives and used to collect data from farmers (research participants). Secondary data was collected from National Irrigation Board and Directorate of Fibre Crops offices at Bura Irrigation and Settlement Scheme.

Data from questionnaires was organized, collated and coded for possible errors according to study objective and variables. Summarized data was keyed into the computer for analysis using Statistical Packages for the Social Sciences (SPSS) version 20.0.

Descriptive and inferential statistics was used to analyze the data, multiple regression analysis model was used to determine the extent of the influences of the various independent variables on cotton production among smallholder farmers.

3. Results and Discussions

The study sought to investigate the influence of seed cotton marketing on Cotton production in Bura Irrigation Scheme. The study investigated seed cotton marketing channels, farmers' engagements with brokers, seed cotton marketing challenges and potential remedies, and the effects of seed cotton price in the recent past and their influence on cotton production.

The respondents were required to indicate whether they sell their seed cotton individually or collectively and all of them indicated that they sell their seed cotton individually (Table 1).

Table 1: How Seed Cotton is sold

How Seed Cotton is sold	Frequency	Percentage
Individually	120	100
Collectively	0	0
Total	**120**	**100**

All the respondents acknowledged that seed cotton brokers exit in their area and they are the major buyers of seed cotton in the Scheme going by 67% of the respondents who positively admitted to selling their seed cotton to brokers. Conversely, only 33% sell their seed cotton to ginnery (Table 2).

Table 2: Buyers of Seed Cotton

Buyer	Frequency	Percentage
Ginnery	39	32.5
Brokers	81	67.5
Total	**120**	**100**

As a follow up of whether the respondents sell their seed cotton to brokers, a large proportion (40.8%) admitted that they do this most of the times while 27.5% of the respondents said they never sell their seed cotton to brokers (Figure 1).

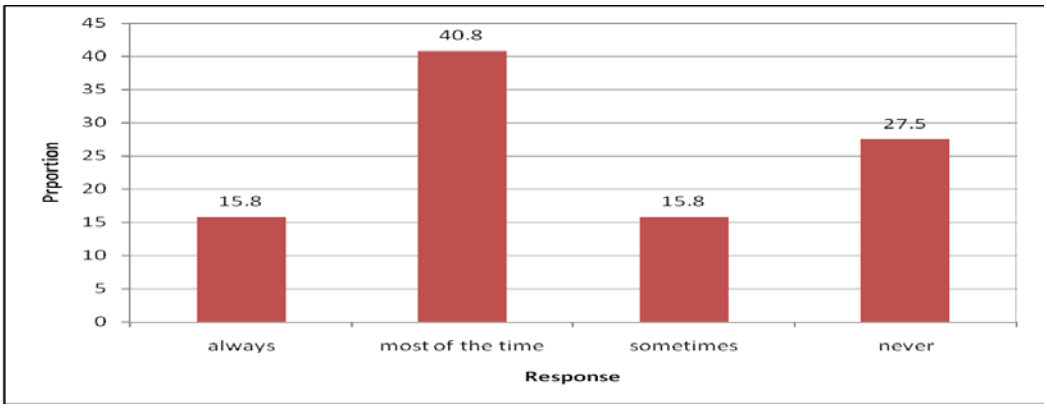

Figure 1: Proportions showing frequencies of selling seed cotton to brokers

The study also sought to find out the reasons for either selling seed cotton to the brokers or not selling to them. An impressive proportion of 62.5% said they sell their seed cotton to brokers because these are the people who are available at the time of harvesting. On the other hand, 0.8% said they need quick money to settle their needs such as payment for labour and since the brokers are available to offer this service they sell the seed cotton to them. On the other side of the divide were those who did not sell their cotton seed to brokers, 30% of these respondents cited the meager price offered by the brokers (Figure 2)

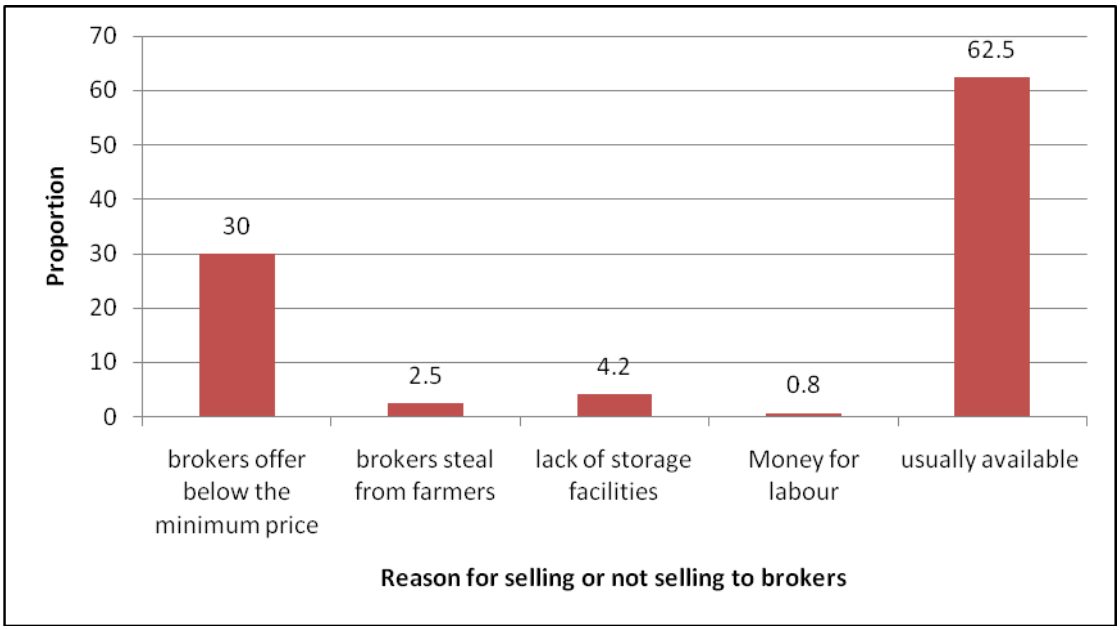

Figure 2: Proportions of respondents identifying reasons for selling to brokers

The respondents were asked to indicate whether they experience challenges during marketing of their seed cotton and to cite the challenges experienced. Analysis established that 80% admitted that they did experience challenges as 20% said they did not experience any challenge in marketing of seed cotton (Table 3).

Table 3: Existence of Seed Cotton Marketing Challenges

Marketing Challenges	Frequency	Percentage
Yes	96	80
No	24	20
Total	**120**	**100**

The challenges cited ranged from inadequate of storage facilities (33%), delay by ginners to come and buy (32%), poor grading systems by brokers 13%, poor prices offered by brokers 17% and 5% indicated that brokers using uninspected or faulty weighing machines (Table 4)

Table 4: Challenges experienced by cotton farmers

Challenge	Frequency	Percentage
Inadequate storage facilities	40	33
Poor grading system by brokers	16	13
Delay by ginners to come and buy	38	32
Use of uninspected weighing scales by brokers	6	5
Poor prices offered by brokers	20	17
Total	**120**	**100**

Going by what the respondents recommended, most of them (60%) would like to see ginnery being established in Bura Scheme, the average distance from Bura Scheme to the nearest Ginnery was recorded to be 350 kilometers away. Others recommended brokers to be eliminated from the seed cotton value chain (16.7%), still others suggested that brokers should offer recommended price for seed cotton (10%) (Table 5).

Table 5: Recommendations cited by respondents for seed cotton value chain improvement

Recommendations	Proportion (%)
Brokers should be eliminated out of the sector	16.7
Brokers should offer recommended prices for seed cotton	10.1
Brokers weighing machines should be inspected	1.7
Ginnery to be established in Bura Irrigation Scheme	60.8
Government to buy seed cotton from farmers	0.8
No idea	1.6
Storage facilities should be set up for farmers within Bura Scheme	8.3
Total	**100.0**

The respondents were requested to state how the price of seed cotton has affected cotton production in their farms and also give their opinion on what should be done to improve cotton production at farm level. Analysis revealed that poor prices seems to be an impediment to seed cotton production, for instance 97.5% of the respondents said that the area under production in their farm has significantly declined due to poor prices while a significantly low proportion of 2.5% said that prices have no effect in cotton production of their farm (Table 6).

Table 6: Effects of price on cotton Production

Effect	Frequency	Percentage
Decline in area under production	117	97.5
No effect	3	2.5
Total	**120**	**100**

On the opinion of farmers on what should be done to remedy the situation, 29.2% of the respondents wished that the cost of production should be brought down through government subsidies and introduction of *bt* cotton, while 70.8% wished that better prices for seed cotton should be offered to farmers (Table 7).

Table 7: Opinion on Seed Cotton price

Opinion on price	Frequency	Percentage
Lower the cost of production	35	29.2
Improve on seed cotton price	85	70.8
Total	**120**	**100**

Analysis of secondary data also revealed that the selling prices of cotton steadily increased from 2009 to 2010 and then experienced a sharp increase from 2010 to 2011. However, from 2011 there was a negative trend as the price decreased sharply up to 2012 and then a steady increase towards 2013. (Figure 3).

The respondents were requested to state how cotton market factors influence cotton production. The response was based on a likert scale ranging from strongly disagree to strongly agree (Table 8). On the basis of this scale, 100% cumulatively agreed that price incentives play part in cotton production. Likewise, 100% of the respondents strongly agreed that adequate storage facilities influence cotton production. However, prompt

payment of produce after production is also a factor that influences cotton production, 98% of the respondents agreed to this statement. Similarly, 62% of the respondents agreed that access to required packaging influences cotton production. On the other hand, cumulatively 98% of the respondents did agree that existing marketing channels influence cotton production negatively.

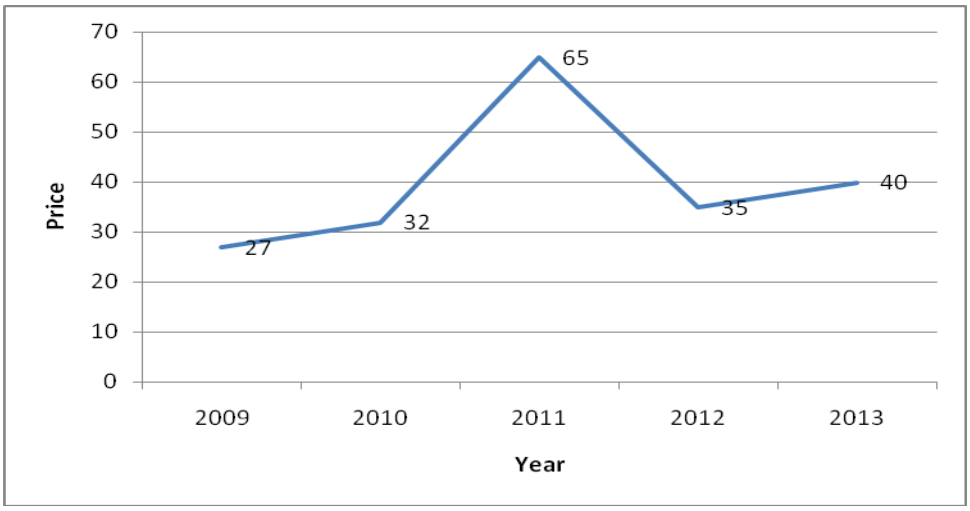

Figure 3: Average cotton prices from 2009 to 2013

Table 8: Influence of cotton marketing on cotton production in Bura Scheme

Variable	SD	D	A	SA	Total
Price incentive	0.0	0.0	37.0	63.0	100
Adequate storage facilities	0.0	0.0	49.4	50.6	100
Prompt payment of produce	0.0	7.3	37.1	56.6	100
Access to required packaging materials	26.1	33.7	38.1	12.1	100
Existing marketing channels	0.0	2.0	62.0	36.0	100

4. Conclusion and Recommendation

The study revealed that the selling price of seed cotton had an influence on cotton production within Bura Irrigation and Settlement Scheme. The absence of storage and ginning facilities within the Irrigation scheme makes cotton farmers to be vulnerable hence selling their produce to brokers at below the market price. All the participants agree that brokers do exist within the scheme, and their presence and activities indicate that they have a significant role in the value chain, though they are seen to impact negatively on cotton production within

the scheme.

Selling prices has a significant impact on cotton production, therefore stakeholders in the cotton industry should on regular basis come together and work on strategies to address and improve the marketing issues associated with seed cotton. Cotton in the scheme is purchased from the farmers by brokers. Brokers quite often manipulate the weighing scales they use, offer lower prices, below the recommended prices of seed cotton to farmers, and many other malpractices should be checked.

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