

# Assessment of Farmers' Awareness, Economic Potentials and Limitations on the Production of Kenaf (*Hibiscus Cannabinus* L) in Southwest Nigeria

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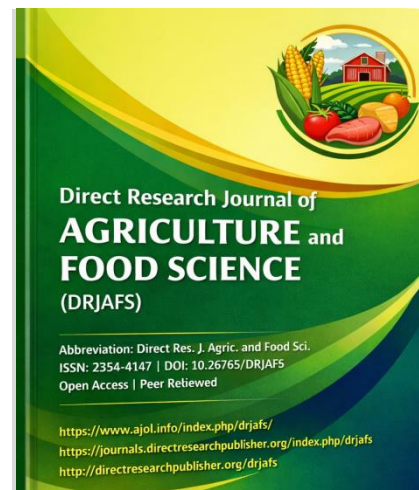
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### ABSTRACT

*The study was conducted in the South-West region of Nigeria to assess farmers' awareness of the economic potentials and constraints associated with kenaf production. Agricultural zones under the Agricultural Development Programme (ADP) in Oyo, Ogun and Ekiti States were selected for the study. Data were collected with well-structured questionnaire from 235 farmers across the 3 States and analyzed using descriptive and inferential statistics. The results show that more males (70.2%) were involved in the farming activities than female (29.8%), the mean age of the farmers was 48±22 years and the sources of agricultural information were mostly radio and extension agents. The results indicate that none of the farmers cultivate kenaf. Farmers have little knowledge of the potentials of kenaf as 53.2% knows that the young kenaf plant can be eaten as vegetable while 38.30% and 22.13% know that kenaf fibre can be used to make produce bag and extraction of oil for cooking. Perceived constraints are non-familiarity with the crop, inadequate information and knowledge on its utilization. It was therefore, recommended that sensitization programme be organized for farmers to bring relevant information and about the potentials of kenaf in the south west Nigeria.*

**Keywords:** Constraints, Awareness, Economic potential, Kenaf production



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## INTRODUCTION

Kenaf (*Hibiscus cannabinus* L.) is an annual fibre crop that originated in Central Africa. It is a warm season crop closely related to cotton (*Gossypium hirsutum* L.) and okra (*Abelmoschus esculentus* L.) (Amusat and Ademola, 2014). Kenaf is used as raw material in many industrial sectors, among which are building ceiling material, paper products, absorbents and livestock feed.

Kenaf (*Hibiscus cannabinus* L.) is a fast-growing fibre crop that has gained global attention due to its significant economic, industrial, and environmental benefits. It is widely recognized as a multipurpose crop because almost all parts of the plant can be utilized for commercial purposes, including fibre production, paper manufacturing, textiles, biocomposites, bioenergy, and animal feed production (Austin *et al.*, 2024). One major economic advantage of kenaf production is its high biomass yield and short maturity period. The crop grows rapidly under tropical and subtropical conditions, producing large quantities of bast and core fibres within a single growing season. The bast fibre is highly valued in industries such as textiles, ropes, packaging materials, and paper production, while the core fibre is useful in absorbents, animal bedding, and biofuel production. This wide range of applications increases its market value and profitability for farmers and agro-industries (Austin *et al.*, 2024; Ajjola *et al.*, 2024).

Kenaf production also contributes significantly to employment generation and rural economic development. In countries like Nigeria, the expansion of kenaf cultivation can create job opportunities across the value chain, including farming, harvesting, fibre processing, transportation, textile production, and export activities. Studies show that kenaf has strong potential to diversify rural economies and reduce dependence on imported industrial raw materials (Odumuyiwa *et al.*, 2024).

In addition, kenaf plays an important role in promoting environmental sustainability and supporting the green economy. The plant absorbs a high amount of carbon dioxide during growth and provides renewable raw materials for biodegradable products. Due to increasing global demand for eco-friendly materials, kenaf fibres are now being used in automobile interiors, construction materials, insulation panels, and bioplastics as alternatives to synthetic fibres (Austin *et al.*, 2024).

Furthermore, kenaf has economic importance in livestock production systems. Its leaves and seeds can serve as alternative feed resources, helping to reduce the cost of conventional animal feed. This makes kenaf a valuable crop for improving profitability in small-scale livestock and poultry farming systems (Popoola *et al.*, 2024).

Kenaf production offers export and industrial market opportunities and with improved processing technologies and government support, kenaf products can meet international standards and compete in global markets for natural fibres and sustainable industrial materials.

This can enhance foreign exchange earnings and strengthen agricultural-industrial linkages in producing countries (Ajjola *et al.*, 2024).

Kenaf oil contains minerals and vitamin which are essential to human health. Kenaf plants possess a wide range of adaptability to different environments, climates, and soil conditions. Kenaf has a high-quality fibresuitable for the production of particle boards, fiber-reinforced plastic components, pulp and paper, chemical absorbents, and many others (Adetumbi *et al.* 2022).

Kenaf is among many naturally renewable materials, that have gained popularity in replacing synthetic and petro-chemical materials in Nigeria. It has been identified as a plant with numerous potentials that can revolutionize the packaging, pulp and paper, building and construction sub-sectors of the Nigeria economy (Yusuf *et al.*, 2024). However, in order to accomplish this, proper processing that will ensure that the product meets domestic and international standards needs to be considered (Omena *et al.*, 2016). The recent change to the use of synthetic fibrelike polyethylene and propylene from petrol chemicals for the packaging of agricultural products worldwide has brought a decline in the demand for natural fibre bio-degradable jute bags (Ernest *et al.*, 2007). However, the extensive utilisation of petro-chemical resources and expansion of synthetic products market have caused increased deterioration of world environment. Therefore, the use of naturally renewable materials are attracting more attentions from both developed and developing countries.

In spite of the rising demand for kenaf in international market, production is still low in Nigeria. One of the major reasons for low production could be attributed to low awareness of the full potential of the crop as well as its economic benefits by farmers in Nigeria. Also, some of the farmers involved in kenaf production are still using old methods of retting (processing) which affect the quality of kenaf fibre. It is evident that if the full potentials of kenaf are fully explored, it can boost the economy and generate jobs for more Nigerians (Ajjola *et al.*, 2024). This study therefore aimed at investigating farmers' knowledge of the potential of kenaf as well as their perceived constraints in its cultivation. The objectives of the study are to examine the socio-economic characteristics of farmers, their source of information, crop combination and cropping system, knowledge of the potential of kenaf crop and perceived constraints in kenaf production.

## METHODOLOGY

The study was conducted in Oyo, Ogun, and Ekiti States located in the South-West geopolitical zone of Nigeria. The area is predominantly agrarian and suitable for the cultivation of various arable crops. Agricultural Development Programme (ADP) zones within the

selected states served as the sampling areas for the study. A multistage sampling technique was employed in selecting respondents. In the first stage, three ADP zones were randomly selected from the four agricultural zones in each state. In the second stage, three villages/communities were randomly selected from each selected zone. In the third stage, ten farmers were randomly selected from each village, resulting in a total sample size of 270 respondents. However, only 235 questionnaires were properly completed and found suitable for analysis. Preliminary visits were conducted with the assistance of ADP personnel in the selected states to identify suitable farming communities for the survey. Primary data were collected using a structured interview schedule designed to obtain information on respondents' socio-economic characteristics, membership of associations, sources of agricultural information, cropping systems, knowledge of kenaf potentials, and perceived constraints to kenaf cultivation. Data collected were analysed using descriptive statistics such as frequencies, percentages, mean scores, and ranking techniques. Perceived constraints to kenaf cultivation were measured using a three-point Likert-type scale of major constraint (3), minor constraint (2), and not a constraint (1). Mean scores were computed for each constraint variable and ranked in descending order based on the severity of the constraints.

## RESULTS AND DISCUSSION

### Socio- Economic Characteristics of the Farmers

Tables 1a and 1b show the result of the socio economic characteristics of farmers. The results show that majority (70.2%) were male while 29.8% were female. This indicates that more males were involved in farming activities in the sampled states. Majority (86%) were married while 1.3%, 7% and 5% were single, widowed/widower and divorced respectively. The mean age of the respondents was 48 years which is an indication that the respondents were still in their active age while the mean years of farming was 26 years. This result agreed with the findings of Adeoti (2014) and Oyegbami and Ajijola (2019) that farming households have the opportunities to acquire knowledge from the more experienced farmers than the younger ones. This shows that the farmers in the sampled states have sufficient experience in agriculture since an average farmer in the area had been farming for more than two decades. The major occupation of respondents was farming (90%) while artisans were about 7% and only 2% were engaged as civil servant. This is in line with the findings of Yusuf *et al*, (2015) that majority of rural populace in the Southwest are agrarian and high

**Table 1a.** Socio Economic Characteristics of Farmers (N = 235).

Characteristics	Frequency	Percentage
<b>Gender</b>		
Male	165	70.2
Female	70	29.8
<b>Marital status</b>		
Married	203	86.4
Single	3	1.3
Widowed/widower	17	7.2
Divorced	12	5.1
<b>Age group</b>		
< 20 years	4	1.7
21 – 40	54	23.0
41 – 60	125	53.2
>60	52	22.1
<b>Major occupation</b>		
Farming	211	89.8
Civil servant	44	1.7
Artisan	16	6.8
Trading		1.7
<b>Educational status</b>		
Adult Education	20	8.5
Primary	131	55.7
Secondary	65	27.7
Tert. Education	19	8.1
Source of capital ( Personal saving)	235	100.0

Source: Field Survey, 2020

percentage were involved in agricultural activities. The educational status of the sampled farmers shows that about 56% had primary education while 28% had secondary education. The level of education is a veritable

tool in the evaluation of alternative agricultural practices that could help in the adoption of some new technologies (Obisesan and Omonona, 2013). The mean farm size cultivated was 2.5 hectares which implies that the farmers

**Table 1b:** Mean Values of Socio economic Characteristics across states.

Variables	Mean Values	Standard Deviation
Age	48 years	11.73543
Years in farming	26 years	9.23722
Household size	7 members	3.43545
Size of farm (ha)	2.5 ha	4.38807
Average annual income (N)	₦359,938.46	

Source: Field survey, 2020

**Table 2:** Distribution of Farmers by Type of Association and Source of information.

Variables	Frequency	Percentage
<b>Member of association</b>		
Yes	197	83.8
No	38	16.2
<b>Type of association</b>		
Cooperative society	41	17.4
Kenaf association	29	12.3
Farmer's association	143	60.9
Village association/coop soc.	22	9.4
<b>Native of the village</b>		
Yes	204	86.8
No	31	13.2
<b>Source of Information*</b>		
Extension Officers	113	48.1
Farmers' association	85	36.2
Radio	125	53.2
Television	38	16.2
Research Institute	50	21.3
Produce buyers	35	14.9
<b>Method of land acquisition</b>		
Inheritance	137	58.3
Leasehold	50	21.3
Rent	3	1.3
Communal land	45	19.1

Source: Field survey, 2020

\*Multiple responses

operate at small scale level of production and the mean household size of the farmers was 7 members. This may be an advantage where family labour is required as this will help reduce cost of production. The source of capital is through personal savings while the average annual income of the farmers was ₦359, 938.46. The estimated average annual income of farmers corroborate the findings of Saadu *et al.* (2024) who confirmed that farm income remains generally modest and improves with technology adoption among small holders.

### Type of association and source of information

Table 2 shows the distribution of farmers on the type of association and sources of information. The results revealed that majority (84%) belong to one association/organization or another, 61% were members of farmers' association which may be a source of easy access to loan to members and also a source of information. However, some farmers were in one cooperative society or the other while about 12% belong to KEPPMAN (Kenaf Production, Processing and Marketing Association of Nigeria). The few members that belong to this association might not be unconnected to

the fact that they are conversant with the crop though they may not be involved in its production or cultivate at very low rate. Source of agricultural information was mostly through radio (53%) and extension agents (48%). This corroborate the findings of Amusat and Ademola, (2014) that farmers in the southwest received information mostly through radio and extension agents. The results further showed that majority of the farmers (66%) are indigenes while 34% were non-indigenes of the communities where their farmlands were located. Majority (58.3%) acquired their farm land through inheritance while others acquired theirs through lease (21%). 19% and 1.3% acquired through communal and rent method respectively.

### Prominent Crop Combination by Farmers

Figure 1 presents the prominent crop combination by farmers. In order of prominence, cassava and maize were the major crops combined with other food crops, 92.3% combined cassava and maize, and 97% combined maize, pepper and vegetables. Other prominent crop combinations in the study areas were cassava, maize, tomato, yam (99%), maize and yam (92%), cassava and

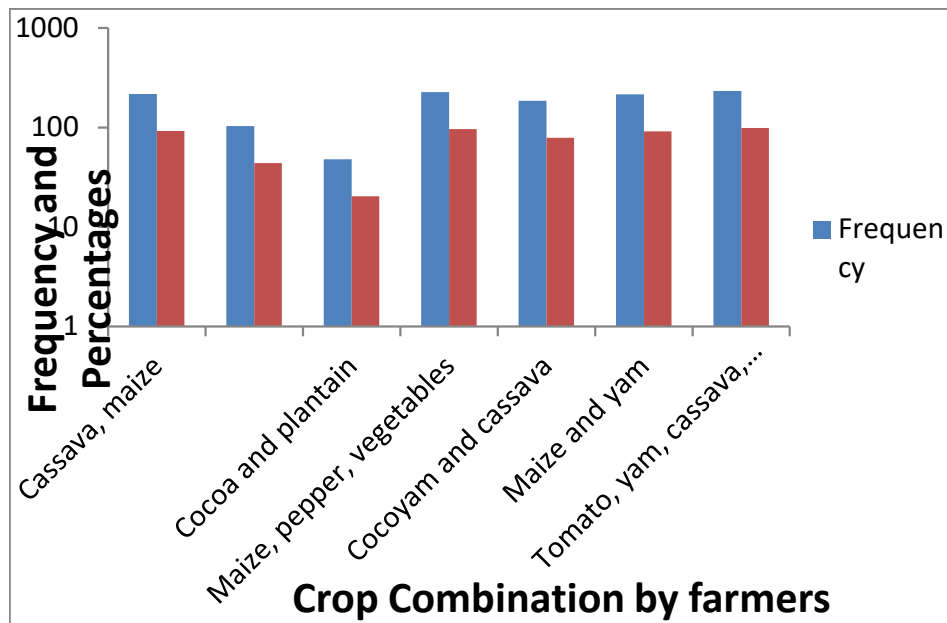


Figure 1: Prominent Crop Combinations among Farmers

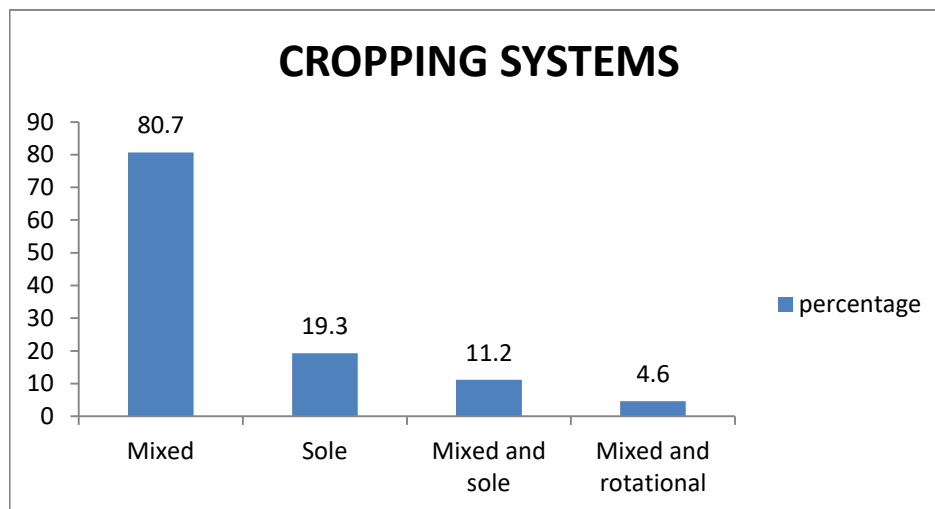


Figure 2: Cropping systems adopted by farmers

cocoyam (79%) and combination of cocoa and plantain (20.4%). This may be necessary to avert the risk that may arise from sole/mono cropping, maximization of soil nutrient and also to increase production and income from combination of crops (Egbetokun *et al*, 2018). Above all it can be deduced that the farmers are not into kenaf production since none of the farmers interviewed cultivated the crop.

#### Cropping Systems Adopted by Farmers

Figure 2 shows the cropping systems adopted by farmers in the study area. It revealed that crops were grown under mixed cropping system by 81% of the farmers while 19.3% cultivated their crops mainly as sole crops.

#### Knowledge of potential of kenaf crop by farmers

Table 3 shows the result of the knowledge of farmers on the potentials of kenaf crop. The result show that very few numbers of the farmers have the respondents that young kenaf plant can be eaten as vegetable (53.2%), that the fibre can be used to make produce bad (38.30%), can be used to make shoes (22.13%) and oil extracted from seed can be used for cooking (21.23%) as these ranked 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively. All the farmers interviewed do not know that kenaf core is part of the material used for dash board in cars; that Kenaf seed is used as part of livestock feed, that kenaf crop requires little or no chemical control during its life cycle and that kenaf can yield up to 4-5 tonnes of fibre per hectares.

**Table 3:** Knowledge of the potential of Kenaf

Potentials of kenaf	Yes (%)	No (%)	Mean	Rank
Young plant eaten as vegetable	125(53.2)	110(46.81)	1.59	1st
Kenaf fibre used as produce bag	90 (38.30)	145(61.70)	1.38	2 <sup>nd</sup>
Kenaf fibre used to make shoes	52 (22.13)	183(77.87)	1.22	3rd
Oil extracted from seed used for cooking	50(21.23)	185 (78.72)	1.21	4th
Fibre used for POP	25 (10.64)	21089.36	1.11	5th
Fibre used for mat	24 (10.21)	211(89.79)	1.10	6th
Can be cultivated biannually	16(6.81)	219 (93.19)	1.07	7th
Core used as absorbent	15 (6.38)	220 (93.62)	1.06	8th
Requires average rainfall	12 (5.10)	223 (94.89)	1.05	9th
Kenaf matures in 3-4moths	11 (4.68)	224 (95.32)	1.03	10th
Fibre used to make carpet	10 (4.26)	225(95.74)	1.04	11th
Fibre used to make table mat	10 (4.26)	225 (95.74)	1.04	11th
Fibre used to make fashion accessories	10 (4.26)	225 (95.74)	1.04	11th
Fibre used as part of dashboard	-	235 (100.0)	1.00	12th
Kenaf requires little or no chemical control during its life cycle	-	235(100.0)	1.00	12th
Can yield 12-15 tonnes per hectares of fibre	-	235 (100.0)	1.00	12th

Source: Field Survey, 2020.

**Table 4:** Perceived Constraints in Kenaf Production.

Constraints	Major Constraint	Minor Constraint	Not a Constraint	Mean ( $\bar{x}$ )	Rank
Not familiar with kenaf crop	231(54.2)	3(1.3)	1(0.4)	1.92	1 <sup>st</sup>
Lack of adequate information/Awareness	205(87.2)	22(9.4)	8(3.4)	1.89	2 <sup>nd</sup>
Lack of knowledge on its utilization	218(92.8)	12(5.1)	5(2.1)	1.83	3 <sup>rd</sup>
Poor education/training on kenaf	88(37.4)	89(37.9)	58(24.7)	1.75	4 <sup>th</sup>
No ready market for the produce	233(99.2)	1(0.4)	1(0.4)	1.73	5 <sup>th</sup>
Shortage of extension officers in disseminating information	216(91.9)	52(22.1)	33(14.0)	1.63	6 <sup>th</sup>
Lack of good road	198(84.3)	101(43.0)	56(23.80)	1.57	7 <sup>th</sup>
Problem of acquiring land for farming	85(36.2)	97(41.3)	53(22.6)	1.51	8 <sup>th</sup>
The crop is not edible	232(98.7)	1(0.43)	2(0.85)	1.46	9 <sup>th</sup>
Sources capital affected the production of kenaf	23(9.8)	92(39.1)	120(52.1)	1.42	10 <sup>th</sup>
Poor provision of kenaf seeds	62(26.4)	105(44.7)	68(28.9)	1.38	11 <sup>th</sup>
Poor agricultural financing	214(91.1)	20(40.0)	1 (0.4)	1.29	12 <sup>th</sup>
Crop combination did not allow easy cultivation of kenaf	45(19.1)	85(36.2)	105(44.7)	1.23	13 <sup>th</sup>
Cropping pattern is inadequate	114(48.5)	67(28.5)	54(23.0)	1.21	14 <sup>th</sup>
High cost of labour	62(26.4)	78(33.2)	95(40.4)	1.18	15 <sup>th</sup>

Source: Field survey, 2020 (values in parenthesis are percentages).

The results indicate that majority of the farmers interviewed have very little knowledge of the potentials of kenaf either through radio or television according to respondents submission and may also not know the economic importance of the crop. This can be a barrier to its cultivation because lack of adequate information on any crop or livestock entity can lead to low production of such crop or livestock and farmers are not ready to invest or go into the cultivation of any crop or livestock that will not give them maximum profit.

#### Perceived Constraints of farmers in the cultivation of kenaf

Table 4 presents the results of the constraints in kenaf cultivation as perceived by farmers. Findings revealed that, non-familiarity with the kenaf crop ( $\bar{x} = 1.92$ ); Lack of adequate information about the crop ( $\bar{x} = 1.89$ ) and lack of knowledge on its utilization ( $\bar{x} = 1.83$ ) as these ranked 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> respectively. Other constraints identified are Poor education/training on kenaf ( $\bar{x} = 1.75$ ), no ready market for the produce ( $\bar{x} = 1.73$ ), Shortage of extension officers in disseminating information ( $\bar{x} = 1.63$ ) and lack of good road ( $\bar{x} = 1.57$ ), Problem of land acquisition ( $\bar{x} =$

1.51) and high cost of labour ( $\bar{x} = 1.18$ ). In this study, labour may not really be a constraint because increases in household size reduce the cost of hired labour (Usman *et al*, 2012).

#### Conclusion

The mean age of farmers in the study area was 48 years considered their active age. The major sources of information were through radio and extension agents. Majority of the farmers belong to one association/organization or another with primary education with 26 years farming experience. But these farmers have little or no knowledge on kenaf cultivation. However, they all indicated interest to be trained on kenaf production and processing. The constraints depict that farmers still need information on this (kenaf) crop to understand the production, processing and utilization.

#### Recommendation

It was therefore recommended that, sensitization programme be organized for farmers to popularize the crop, its potentials and its economic importance through

different medium. Extension agents should also intensify efforts to bring timely and relevant information about the crop, its production, processing, marketing and utilization. Government intervention in the supply of inputs like seeds, fertilizer, agro-chemicals for kenaf cultivation, decorticating machine, retting materials among many others at subsidized rate, will encourage more farmers to go into its production, processing and utilization.

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