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UTILIZATION OF CASSAVA AND JATROPHA AS BIOFUEL CROPS BY FARMERS IN SOME VILLAGES OF KWARA STATE NIGERIA

Adebayo, S. A., Ogunlade, I. and Jegede, K.

ABSTRACT

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This study analyzed the utilization of cassava and jatropha as biofuel crops in Kwara State, Nigeria. Moro and Ekiti were purposively selected for this study because of the fact that there are a lot of farmers who are engaged in the cultivation of cassava and jatropha crops in the study areas. 50 respondents each were randomly selected local government areas making a total sample size of 100 respondents. Interview schedule was used to elicit information from the respondents. Data were analyzed using descriptive statistics such as frequency distribution, percentages and charts while chi square was used to test the hypothesis. The result shows that the farmers are between the ages of 41-50 years (38%), majority were male (80%), 78% were married while 75% had farming as their major occupation as against 40% that had no formal education. The result reveals that majority of the farmers used their cassava and jatropha to process garri (100%) (cassava flakes) and medicine (74%) respectively. Chi square analysis showed that there was a significant relationship between the socioeconomic characteristics of farmers and their level of utilization of biofuel crops ($P < 0.05$). It is therefore recommended that awareness opportunities should be created for these rural farmers on the uses and benefits of biofuels crops through institutions, cooperate, public and private organizations.

INTRODUCTION

Biofuels are liquid transportation fuels made from plants and animal residues used for car, trucks, airplanes and trains (Yacobucci and Schnepf, 2007). According to Wilson et al. (2005), biofuels are renewable fuels that can be manufactured from conventional agricultural crops. Dekeiser and Hongo (2005) projected that promotion of biofuel production in rural agriculture will create a lot of job opportunities across the globe which include China, Venezuela and sub-Saharan Africa. Moreover, Hart et al. (2008) suggest that besides job opportunities for the communities, farmers could benefit by potentially replacing their fuel needs with biodiesel made on their farms whilst rotating different crops within the same field to suit what it produces and contributes best in biofuel production and further bringing agricultural communities closer to ecological and economic sustainability. Furthermore, biofuel crop production can bring about positive gender effects since it is often women and children in the villages and household levels who carry out the bulk or load of agricultural production and fuel wood collection (UNDESA, 2007). In Africa context, crops that seem to have large scale potentials in biofuel production are sugarcane, cassava, maize and sweet sorghum for the production of ethanol, Oil-palm and Jatropha produces Biodiesel. These crops are also referred to as the first generation Biofuel (Eickhout et al., 2008). However, farmers are not aware of the opportunities that await them through this biofuel crops production. Utilization of cassava and jatropha as biofuel will provide opportunity for farmers in terms of income and employment. Moreover, it will enable the farmers to be involved in the value chain and global market. The study was carried out to assess present utilization of biofuel crops. The specific objectives are to determine the socioeconomic characteristics of farmers in the area, to identify the utilization of cassava by the farmers, to investigate the utilization of jatropha by the farmers

METHODOLOGY

Study area

The study was carried out in Kwara state Nigeria. Kwara state which is one of the 36 states in Nigeria came into existence on 27th May, 1967. It is located between latitudes 7°45' and 9°30' and longitude 2° 30' and 6° 25' east on the prime meridian. The name Kwara was derived from the native appellation for River Niger, the longest river in Nigeria which is 1174.6 km long (Adekunle, 2006). Kwara state is bounded in the north by Niger State, in the south by Oyo, Osun and Ekiti in the east and in the west by Benin Republic. It is located in the North Western Nigeria and because of this unique geographical location; the state is referred to as the 'gateway' between the north and the south of the country. The topography is mainly plain to slightly gentle rolling lands. The annual rainfall ranges between 1000 mm and 1500 mm and it has two distinct season, rainy and dry season. Average temperature ranges between 30°C and 35 °C. Kwara state covers the area of 36825 square kilometers and has a population of about 2591555. The state is divided into 3 senatorial district which are Kwara south, Kwara central and Kwara north and it has 16 Local Government Areas. Agriculture is the main stay of the economy and 72% of

the population is engaged in this sector. The state provides food crops such as maize, cassava, sweet potato, cassava, banana, cocoyam, onion, sweet potatoes, vegetables and livestock such as goat, sheep, cattle and poultry. The study was carried out in some selected villages surrounding Ilorin, Kwara state. Ilorin metropolis consists of 3 Local Government Areas-Ilorin East, West and South. It is located on Latitude 8° 30' N and Longitude 4° 35' E. The city emerged as the Kwara State capital in 1967, during the creation of 12 states in Nigeria by the defunct military era. Both physical and structural expansion of the city started from this period and it is almost impossible to distinguish other three LGA's that are parts of the mother town within the city center

Sampling procedure and sample size

Purposively 50 farmers each from Ekiti and moro LGAs involved in cassava and jatropha used in the production of biofuel were randomly selected to give a sample size of 100 farmers. Ekiti and Moro local government were purposively selected because of large number of farmers that are into cassava and jatropha production. In Ekiti local government, twenty respondents were selected from osi village while ten respondents each were selected from Koro, Owa-otun and Isale opin. In Moro local government, thirty farmers were selected from Bielesin Fallah while ten respondents each were selected from olokiti and alagbon respectively.

RESULT AND DISCUSSION

Table 1 shows the socio-economic status of the respondents. The result reveals that 38 % of the respondents were between the ages of 41 – 50 years, 80 % of them were males, 78 % were married while 75 % were mainly engaged in farming. This implies that farmer in the study areas are still in their active age and so can carry out agricultural activity better. Besides, they have a very high sense of responsibility because they have family and dependants to take cater for. This research work is in accordance with Onasanya (2007) who reported that most crop farmers are married. Also, 40 % of the total respondents have no formal education while 32 % have tertiary education. This implies that farmers that fall in this category are literate enough to be innovative and so can adopt new technologies very fast and also make use of it to improve their standard of living.

Utilization of cassava by the Farmers

Fig. 1 shows utilization of cassava by the farmers. The result reveals that all the respondents (100%) use cassava to produce Gari. Majority of the farmers use cassava as food (82%), for cassava starch (63%), cassava flour (58%), fufu (58%) and for chips (32%). It is only 1% of the respondent that uses cassava as part of livestock feed. This implies that cassava is majorly used or consumed as food. Only 32 % and 1 % of the respondents uses it for modern things like cassava chips and livestock feed respectively. None of them uses it for biofuel.

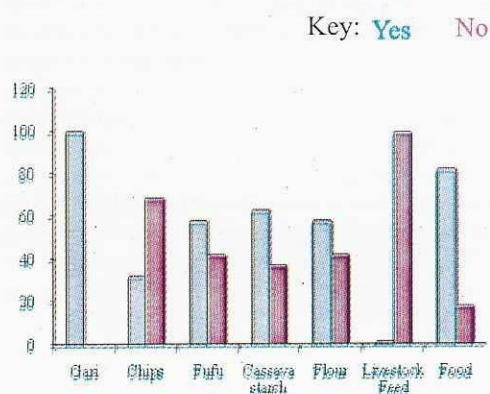


Fig.: Utilization of Cassava by the respondents

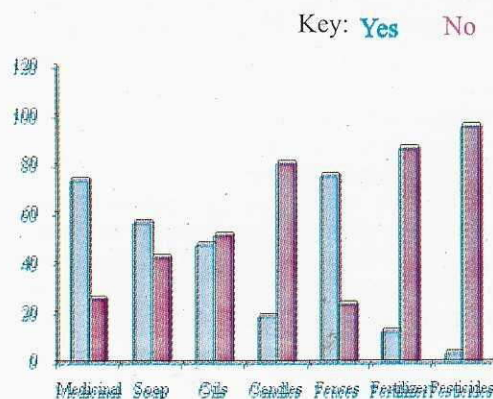


Fig. 2: Jatropha uses as outlined by the farmers

Utilization of Jatropha by the farmers

Figure 2 shows utilization of jatropha by farmers. The result reveals that majority of the respondents use their Jatropha plant for medicinal purposes (74%) (Bathing newborn babies as well as weak babies within an interval of 3 days, mouth wash, correcting dysentery, Healing wounds, ring worms among others. 76% of the farmers use Jatropha plant as fences around their homes and this is in support of Makkar *et al*, (1998) that reported that Jatropha plant is often used as a fence around homestead garden fields because it is not browsed by animal. 57% of the respondents use it for producing soaps (local black soap), 48% of the respondents use jatropha for the production of oil, 19% of the farmers use it to make candles 13% uses it for producing fertilizers while 4% uses it to produce pesticides. This implies that farmers in the study areas still dwell mainly on the local uses of Jatropha

plant and are not yet aware that they can produce oils from the plant which could also benefit the living standard. Only a few of them have used it to produce fuel.

Table 2: Distribution of respondent by socioeconomic characteristics

Variables	Frequency	Percentage
Age		
≤ 30 years	14	14
31-40 years	35	35
41-50 years	38	38
51-60 years	10	10
60 and above	3	3
Total	100	100
Gender		
Male	80	80
Female	20	20
Total	100	100
Marital status		
Single	15	15
Married	78	78
Divorced	2	2
Widowed	5	5
Total	100	100
Educational level		
Non formal	40	40
Primary	16	16
Secondary	12	12
Tertiary	32	32
Total	100	100
Occupation		
Farming only	75	75
Farming and hunting	6	6
Farming and trading	8	8
Farming and carpentry	1	1
Farming and tailoring	1	1
Government worker and part-time farming	5	5
Farming and Okada riding	4	4
Total	100	100

Field study 2010

Test of hypothesis

There is no significant relationship between the socioeconomic characteristics of the farmers and utilization on biofuel crops. The result of the chi square analysis shows that there is significant relationship between the socioeconomic characteristics of the farmers and their level of utilization on biofuel crops.

Table 2: Chi square analysis

	Socioeconomic Characteristics	Calculated chi square value	Df	Pv	Decision
1	Age	48.700	4	0.05	Significant
2	Gender	36.000	1	0.05	Significant
3	Marital Status	153.520	3	0.05	Significant
4	Educational Level	21.680	3	0.05	Significant
5	Occupation	301.380	6	0.05	Significant

p>/ 0.05

CONCLUSION AND RECOMMENDATION

The study showed that farmers in the study areas still dwell mainly on the local uses of both cassava and jatropha. Cassava is majorly consumed, none of the farmers use it as biofuel however, jatropha is majorly used as a fence around homestead garden fields, and only a few used it as biofuel. The study therefore recommends that

awareness opportunities should be created in rural areas to improve their insight on the future promises of biofuel for their development through agricultural institutes, Public and Private Organization.

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