

ASSESSMENT OF THE AWARENESS AND USES OF *JATROPHA CURCAS* IN LANKAN DISTRICT OF PANKSHIN LGA, PLATEAU STATE, NIGERIA.

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ABSTRACT

Jatropha curcas is a multipurpose plant with potentials for biodiesel production and medical uses. This study focused on the assessment of the awareness and uses of *Jatropha Curcas* in Lankan District of Pankshin Local Government Area of Plateau State, Nigeria. Data collected for the study was through the use of well structured questionnaire administered to sixty (60) respondents randomly selected from the study area. It specifically described the socioeconomic characteristics of the respondents, examine farmers awareness of the economic uses of the plant, identified the prevalent uses of *Jatropha curcas* in the area. Descriptive statistics such as frequency counts, means and percentages were used as tool for data analysis. The results show that 36.67% of the respondents were within the age range of 41-50years, 65% were males, 55% were married, 51.67% had tertiary educational qualifications, 41.67% were farmers and 33.33% had farming experience. The result revealed that 43.33% of the respondents access information from parents and guardians. The study indicates that the crop is used for fencing (33.33%), 25% used it for land demarcation, 16.67% for medicinal purposes, 8.33% used it for erosion control etc. It was discovered that only 13.33% of the respondents were aware of the economic importance of the crop. It is therefore recommended that more enlightenment campaign about the economic uses of the crop be embarked upon by the Federal and State Governments.

INTRODUCTION

The history of domestication of plants and animals is as old as mankind. Man has been exploring his environment to discover what is of use to him. Several plants and animals have been adapted and adopted for food, medicine, ornamentals, fuel, research, industrial and other uses.

Jatropha curcas is a multipurpose plant that belongs to the family Euphorbiaceae. It contains some 7500 species in 275 genera (*Jatropha* world, 2007). The word "Jatropha" was derived from the Greek words "Jatros" meaning doctor and "tropha" meaning food (Karma and Sharma, 2008) which incorporated the historical medicinal uses of this plant. The specific epithet "curcas" was first used by a Portuguese doctor, Garcia De Orta, more than 400 years ago and it is of uncertain origin. This plant originated from the north and eastern part of South America and dry area in Mexico (*Jatropha* world, 2007) and report has shown that the plant was introduced by Portuguese ship via the Cape Verde Island and Guinea Bisau to other countries in Africa and Asia (Heller, 1996). It is currently cultivated abundantly in many tropical and subtropical regions in Africa and Asia.

There are two genotypes classified as toxic and non-toxic (Becker and Makka, 2008). The lifespan of the plant is up to 50 years (Achten *et al*, 2010).

Jatropha curcas was introduced into Nigeria in the year 2007, and many policies were developed by the past Nigeria Governments on how to promote bio-fuel and nothing much beneficial has been brought out of those policies. In line with August 2005 Government directives on bio-fuel, the country released the Nigeria bio-fuel policy and incentives in 2007 which mandated the Nigeria National Petroleum Cooperation (NNPC) to receive and blend 20% of biodiesel into petro-diesel fuel sold in Nigeria with the aim of linking the Agricultural sector with the petroleum sector in order to boost the agricultural sector and rural sectors. Incentives included in the policy for emerging bio-fuel companies included Waiver (VAT), withholding import duty, loan and insurance coverage (Galadima *et al*, 2011).

Presently, Nigeria Government has shown great interest in *Jatropha* as a bio-fuel plant. The aim is to gradually reduce the nation dependence on imported gasoline, reduce environmental pollution as well as create commercial viable industry. This paper is to analyze the awareness and uses of *Jatropha curcas* in Lankan District of Pankshin Local Government Area of Plateau State, Nigeria.

Objectives of the Study

The main objective of this study is to assess the awareness and uses of *Jatropha curcas* in Lankan District of Pankshin LGA of Plateau State, Nigeria. The specific objectives include: To

- a. determine the socio-economic characteristics of the farmers in the study area.
- b. assess the awareness of farmers of *Jatropha curcas* in the study area.
- c. analyze the uses of *Jatropha* in the study area.
- d. assess farmers sources of information in the study area.

Purpose of Study

1. The uses of *Jatropha* will be a great value both now and in the near future to all those interested in the production of *Jatropha curcas*, thereby providing an employment opportunity to them.
2. It will reveal the great benefit of *Jatropha* on livelihood as a medium of poverty alleviation, sustainable biodiesel production, fighting desertification and medical uses.
3. It will serve as a reference material to subsequent research on *Jatropha curcas*.

Statement of Problem

Despite the great interest the Nigeria Government has developed on the production of *Jatropha curcas*, most local farmers are not aware of the economic uses as effective income generating activity and factors that contribute to poor adoption of its production among farmers in the study area.

Scope of the Study

The study is designed and focused on the assessment of farmers' awareness of the economic importance of *Jatropha curcas* in Lankan District of Pankshin LGA of Plateau State. Six villages known for the cultivation of the plant were randomly selected for the study. They include Abwor/Dyis, Jiblr, Jing, Lankan, Kagu and Sihin.

Sampling Procedure and Sample Size

A multi stage sampling technique was used to select the sample size of the study.

In the first Stage, Lankan District of Pankshin LGA of Plateau State was purposely selected being known for the cultivation of the *Jatropha curcas*.

In the second stage, six villages were randomly selected for the district.

Thirdly, ten (10) farmers were randomly selected from each village, thereby giving a sample size of sixty (60) respondents.

Materials and Methods of Data Collection

A structured questionnaire was used to collect data from respondents along with oral interview. The questionnaire is divided into two parts; Part A focused on information on the socio-economic characteristics of the respondents while Part B is based on eliciting information relevant for the study.

Method of data Analysis

Data collected was analyzed using descriptive statistics such as frequency distribution, means and percentages.

RESULT AND DISCUSSION

Socio-Economic Characteristics of the Farmers

The result as shown in Table 1 indicates that 22(36.67%) of the respondents were between the ages of 41-50years. This reveals that the active age of the respondents are involved to some extent. Majority of the respondents were males (65%) while (35%) were females, majority (55%) of them were married and most of them (51.67%) had tertiary education. This indicates that majority of the respondent in the study area were educated and due play a vital role in agriculture. This agrees with the findings of Bomire *et al* (2007) in Belewu *et al* (2010) who stated that education and experience improves the managerial competency of the farmers in production and increase productivity. The major occupation of the respondents in the study area shows that 49.99% were farmers. This indicates that they depend on agriculture to some extent because agriculture plays a significant role in the lives of the people. The farming experience of the respondents indicates that 33.33% had farming experience of 20 years and above while only 5% had no experience in farming. This could be due to the fact that there are more elderly people who are into farming for long while the less experience people could be the young people who are engaged in schooling, spending less time in agricultural activities.

Awareness

The results as shown in Table 2 indicates that majority (86.67%) of the respondents were not aware that bio-fuel can be distilled from *Jatropha curcas* while only 13.33% were aware of it. This is in consonance with the assertion of MOE (2002) that uptake and adoption of new technology on *Jatropha curcas* is a challenge which is highly dependent on the level of understanding and awareness of the product. For optimal adoption of *Jatropha curcas*, farmers need and require relevant knowledge or information for their successful use.

Uses

Table 3 shows the prevalent uses of *Jatropha curcas* by the respondents in the study area. Twenty respondents (33.33%) use the plant for fencing of crops like cassava, gardens and compounds, 25% used it for land demarcation, 8.33% used it as hedges, 16.67% used it for medicinal purposes such as treatment of rashes, ringworm and other skin diseases, diarrhoea and wounds, 8.33% used it for control of soil erosion and as ornamental trees. This result corroborates with the findings of Tiegere *et al* (2006) that *Jatropha* is widely cultivated in the tropics as a living fence for erosion control, land demarcation and protection of homestead, garden and fields against browsing animals. It is believed too to repel snakes from the field.

Source of Information

Table 4 shows that 43.33% of the respondents got their information, to some extent, from the family (Parent / guardians) while 31.6% obtain theirs from fellow farmers and friends, 16.67% got their information through the media (especially radio) while 8.33% obtained it from the extension agents. This shows that the farmers have no good access to information from the extension agents. Access to relevant information and delivery determines adoption of technology. Misra and Misra (2009) stated that a key parameter important to uptake of technologies is the access to relevant knowledge and access to knowledge relates to good delivery systems.

CONCLUSION

This research finding concludes that majority of farmers in the study area are not aware of the economic value of *Jatropha curcas*. It was discovered that the prevalent uses of the crop were mainly for fences, land demarcation, control of soil erosion or land desertification / degradation, hedges and some medicinal uses.

RECOMMENDATIONS

1. More enlightenment campaign about the production and uses of *Jatropha* be launched nationwide, especially for young people to sensitize them into the business and in general on the advantages of the uses of bio-fuel to humans
2. The Federal Government should support research on *Jatropha curcas* as a bio-energy crop and provide farmers with varitable incentives that will boost productivity. In this way, development of bio –fuel from *Jatropha* would not only serve to reduce dependence on fossil fuel but also in generation of employment opportunities and accelerate rural development.
3. Adequate information base is required in a number of scientific production and processing in order to sustain the uses of *Jatropha* as bio-based resources especially in the area of oil processing, oil pre –treatment and isolation
4. Effort should be geared towards attracting investment for the Government and private sectors into *Jatropha* plant breeding. This would increase developing *Jatropha* varieties with improved and stable yields.

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Table 1: Socioeconomic characteristics of the respondents

Age	Frequency	Percentage (%)
< 20	2	3.33
21 – 30	7	11.67
31 – 40	15	25
41 – 50	22	36.67
< 50	9	8.33
Total	60	100
Sex	Frequency	Percentage
Male	39	65
Female	21	35
Total	60	100
Marital Status	Frequency	Percentage (%)
Single	15	25
Married	38	55
Divorced	4	6.69
Widow / Widower	8	13.33
Total	60	100
Education Qualification	Frequency	Percentage (%)
Primary	7	11.67
Secondary	10	16.66
Tertiary	31	51.67
Non-formal	4	6.67
No School	8	13.33
Total	60	100
Occupation	Frequency	Percentage (%)
Farming	30	49.99
Business	10	16.66
Civil Servant	20	33.33
Total	60	100
Farming Experience (Years)	Frequency	Percentage (%)
1 – 5	3	5
6 – 10	13	21.67
11 – 15	15	25
16 – 20	9	15
< 20	20	33.33
Total	60	100

Table 2: Awareness of the Economic Importance of *Jatropha curcas*

Variable	Frequency	Percentage (%)
Awareness	8	13.33
Non-awareness	52	86.67
Total	60	100

Table 3: Prevalent Uses of *Jatropha curcas*

Uses	Frequency	Percentage (%)
Medicinal	10	16.67
Fences	20	33.33
Hedges	5	8.33
Land demarcation	15	25
Ornamental	5	8.33
Erosion control	5	8.33
Total	60	100

Table 4: Sources of Information

Source	Frequency	Percentage (%)
Family	26	43.33
Farmers / Friends	19	31.67
Media	10	16.67
Extension agents	5	8.33
Total	60	100