PERCEIVED ATTITUDES OF OIL PALM PROCESSORS TOWARDS OIL PALM PROCESSING WASTES IN EDO STATE, NIGERIA

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Abstract
The study assessed perceived attitudes of oil palm processors towards oil palm processing wastes in Edo eState, Nigeria. Specifically, the study described the socio-economic characteristics of the processors, examined processors attitude towards the wastes they generate at the mills, and assessed the level of utilization of the wastes. A multi-stage sampling procedure was used to select a total of Two Hundred and Fifty Thousand (250) respondents for the study. Data were collected with the use of a structured questionnaire and analyzed with descriptive and inferential statistics (Pearson Product Moment Correlation). Results showed that majority (72.2%) were males, majority (89.6%) were married and had a mean processing experience of 10 years. Results also revealed that processors attitude towards wastes was unfavorable (86. 6%) while the level of waste utilization was low (78.4%). Correlation analysis result revealed that that at p ≤0.05 age (r=0.16), and household size (r= -0.19) were positively and negatively related to oil palm waste utilization, grespectively. The study concluded that oil palm processors in Edo State generally exhibited unfavourable attitude towards oil palm processing wastes, which will generally hinder optimal utilization of the wastes. The Study recommended adequate training of oil palm processors through workshops, seminars, and training programmes on wastes for income generation and sustainable environment.

Keywords: Perceived, Attitude, oil palm, processors, processing wastes.

Introduction

The Oil Palm Industry in Nigeria is a significant contributor to the economy of the country. The industry has a long value chain, and processing. According to the Food and Agriculture Organization, (FAO) (2020), the country is one of the largest producers of oil palm in the world. However, the processing of oil palm into palm oil is said to generate large amounts of wastes, which include empty fruit bunches, palm kernel shells, and palm oil mill effluent among others (Yusof and Hansen, 2007). These wastes have become a source of environmental and health concerns, notably water pollution, soil degradation and health risks, both to humans and animals (Kamarudin *et al*., 2017).

In spite of the challenges posed by processing wastes, Kamarudin *et al*. (2017) found that oil palm processors' attitude towards processing wastes is lax towards management of wastes, which result in negative impact of the waste on environment, health and the economy; however, a lack of awareness of the potential benefits derivable from the wastes could be a major reason for this laxity and lack of concern regarding the environmental and health impact of the wastes (Ejike *et al*., 2017, Gbadebo, *et al*., 2021). A study by Adeoye *et al*. (2020), however, found a link between processors' attitude towards wastes and socio-economic factors.

Kamarudin *et al.* (2017), noted that *oil* palm processor's attitude towards management is an important factor that influences the adoption of sustainable waste utilization practices. They observed that positive attitude towards waste management makes processors more open to innovative waste utilization technologies and practice.

Objective of the Study

The broad objective of this study was to assess perceived attitudes of oil palm processors towards oil

palm processing wastes in Edo State.
The Specific objectives were to:

i. describe the socio-economic characteristics of the oil palm processors in the study area;
ii. ascertain percieved attitude of oil palm processors towards oil palm processing wastes in the study area and
iii. determine the level of waste utilization among the processors and.
iv. determine relationship between socio economic characteristics and wastes utilisation

Methodology

The study was carried out in Edo State, Nigeria, A multi-stage sampling procedure was used in the selection of respondents for the study. The first stage involved purposive selection of Edo, where the production of oil palm is intensely a major economic activity. The second stage involved simple random selection of two (2) ADP blocks each, from the three (3) ADP zones in Edo State, making a total of six (6) blocks; which gives at least one- third of the total blocks of the ADP blocks in the State. The third stage involved a proportionate selection of ten (10) percent of respondents from an aggregate list of all registered processors in the various ADP zones of Edo State. A total sample size of 250 respondents was selected.

Table 1: Sample size selection plan

ADP Zones selected Edo State	No. of blocks/zone	ADP blocks involved in oil palm processing selected/zone	sampling frame processors of oil palm	Sample Size (10%)
Edo South	7	Ovia North East	490	49
		Ovia south West	430	43
Edo Central	5	Esan West	420	42
		Esan Central	350	35
Edo North	6	Etsako East	440	44
		Owan East	370	37
Total	**18**		**2500**	**250**

Results and Discussion

Socio-economic characteristics of respondents

Table 2, the result shown that majority (72.8%) were males while 27.2% were females, which implies that males were more predominantly involved in oil palm processing activities than their female counterparts in the study area this is contrary to Adelakun *et al*. (2016) who stated that the majority of oil palm processors were females, but agrees with Okwu and Nwachukwu (2018) who reported that majority of the oil palm processors were male. This may be as a result of the drudgery involved in the work; making the men to be more active in this aspect of oil palm production.

Table 2 shows that majority (89.6%) of the oil palm processors were married, 5.6% were widowed, 4.8 % were single while 0.8 % were divorced; which means that the majority of the oil palm farmers were married. This shows that the marriage institution is highly regarded in the study area. This could also be a major determinant by the respondents for going into oil palm processing to increase the family income

Table 2 shows that 29.0% fell between 51-60 years, 27.0% fell between 41-50 years 8.4% were between 31-40 years and 16.4% were between 61-70 years; with a mean age of 49.18 years, which indicate an economically productive active age of the oil palm processors in the study area. This agrees with by Onyemauwa *and* Nwosu *(*2017), who found the mean age of oil palm processors

to be 49 years and within the active and productive age range implying that processors can engage in processing activities for meaningful and sustainable development of this sub-sector.

Table 2 shows a mean of 6 persons per household. this is in line with Ugochukwu and Anyaegbu (2019), Idumah and Omoruyi (2020) who found mean household size of oil palm processors to be 6 in Abia and Edo State respectively This shows that oil palm processors had fairly large household sizes, which may indicate a high dependence on family labour; implying available production labour.

Table 2 shows that 34.4% of the oil palm processors were secondary school holders, 23.6% attempted secondary school, and 14.8% of the respondents had tertiary education and 7.6% neither had formal education nor completed primary school respectively. Also, those who completed primary and tertiary education represented 6.0% each. This implies that most of the oil palm processors in the study areas had formal education in the study area, which could influence better knowledge of oil palm farming. The processors could practise new ways of oil palm processing from the teachings of extension agents which implies that technology adoption would be enhanced and is also a boost to the ability of processors to plan and take risks.

Table 2 shows that majority (57.6%) of the respondents had between 1-10 years of experience, which shows the highest percentage of processing experience in the location, while 29.2% of the processors had between 11-20 years of experience, 12.4% had experience of 21-30 years, while only 0.8% had a processing experience of 31-40 years; having a mean processing experience of 10 years, which corroborates Ighodaro and Aighologba (2018) who reported that the processors had a mean experience of 10 years in Edo State .This implies that majority of the processors in Edo State had considerable experience in oil palm processing which could help them in effective management decisions in terms of input utilization, labour use and allocation of their resources and overall processing efficiency.

Table 2 Socio-economic characteristics of respondents (n=250)

Variables		Frequency	Percentage	Mean
Sex	Male	182	72.8	
	Female	68	27.2	
Marital status				
	Single	10	4.0	
	Married	224	89.6	
	Widowed	14	5.6	
	Divorced	2	0.8	
Age of respondents (Years)				
	21 – 30	16	6.4	
	31 – 40	46	18.4	
	41 – 50	69	27.6	
	51 – 60	73	29.2	49.18 years
	61 – 70	41	16.4	
	71 – 80	5	2.0	
Household size				
	1 – 3	23	9.2	
	4 – 6	141	56.4	
	7 – 9	70	28.0	
	10 – 12	14	5.6	6 persons
	Above 12	2	0.8	
Educational level				
Non formal education		19	7.6	
Primary school attempted		19	7.6	
Primary school completed		15	6.0	
Secondary school attempted		59	23.6	
Secondary school completed		86	34.4	
Tertiary attempted		15	6.0	
Tertiary completed		37	14.8	
Years of processing experience (years)				
	1 -10	143	57.6	10 years
	11 – 20	74	29.2	
	21 – 30	31	12.4	
	31 – 40	2	0.8	

Source: Field survey (2024)

Oil palm processors attitudes towards processing wastes

Table 3 shows that farmers' attitudes were most favourable to statements 'I don't think oil palm processing wastes are worth wasting my resources on'($\bar{x}$ =3.0), I don't believe that the benefits of utilizing oil palm processing wastes are significant enough to waste my efforts on them ($\bar{x}$ =2.7).

Table 3 also show the most unfavourable attitude towards statements 'I am willing to invest time and money to turn the wastes to wealth' ($\bar{x}$ = 1.3), I believe that oil palm processing waste can be a valuable resource for alternative products ($\bar{x}$ =1.4). Overall, majority (89.60%) of the processors had an unfavorable attitudes towards processing wastes while a few (10.40%) had favorable attitudes towards oil palm processing wastes. However, Ajani et al. (2013), in his investigation of the environmental and socio-economic impact of processing wastes in Nigeria, found that respondents had mixed attitudes towards processing wastes. The attitudes of the processors towards processing revealed in this study, indicates a lack of awareness of the benefits of the wastes, and a lack of concern for the impact of the waste on health and the environment. This will ultimately hinder sustainable management of wastes for promotion of sustainable agriculture in Nigeria.

Table 3a. Attitude of processors towards processing wastes (n=250)

Statements:	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Mean ($\bar{x}$)
I believe that oil palm processing waste can be a valuable resource for alternative products	5(20)	12(36)	61(122)	172(172)	1.4
I feel that utilizing oil palm processing wastes can reduce some of the environmental impact	11(44)	23(69)	105(210)	111(111)	1.7
I think that Piles of oil palm processing waste leads to a dirty environment	5(20)	18(54)	130(260)	97(97)	1.7
I am willing to invest time and money to turn the wastes to wealth	6(24)	23(69)	134(268)	87(87)	1.3
I think that the benefits of using oil palm processing wastes are greater than the cost	10(40)	25(75)	131(262)	84(84)	1.8
I don't think that oil palm processing wastes are of any value	52(208)	40(120)	110(220)	107 (107)	2.6
I believe that oil palm processing wastes are a nuisance taking up space	14(56)	40(120)	108(216)	88(88)	1.9
I am not interested in learning how to utilize them	16(64)	26(78)	134(268)	74(74)	1.9
I think oil palm processing waste can be harmful to the environment if not properly disposed of.	15(60)	34(68)	106(212)	95(95)	1.7
I don't believe that the benefits of utilizing oil palm processing wastes are significant enough to waste my effort on them	69(276)	38(114)	139(278)	4(4)	2.7
I don't think oil palm processing wastes are worth wasting my resources on.	95(380)	88(264)	54(108)	4(4)	3.0
utilizing processing wastes to could result in loss of investment	6(24)	43(129)	134(268)	67(67)	1.9
I am not sure of the usefulness of oil palm processing waste to my farm	7(28)	52(156)	107(214)	84(84)	1.9
	Strongly agree	**Somewhat agree**	**Somewhat disagree**	**Strongly agree**	**Mean**
I don't have enough information to make a decision about using oil processing wastes for alternative products	24(96)	45(135)	87(174)	94(94)	1.9
I am willing to use oil palm processing wastes, but I need strong conviction	22(88)	65(195)	54(108)	109(109)	2.0
I think that oil palm processing wastes can be useful but I am ignorant on how to use them	19(76)	56(168)	112(224)	63(63)	2.1
I am open to learning more about oil palm processing wastes but I am neural in my opinion	20(80)	44(132)	104(208)	82(82)	2.0
If 1 am convinced on the benefits of oil palm processing wastes, I can start seeing it as a resource.	31(124)	71(213)	57(114)	88(88)	2.2

source: Field survey (2024)

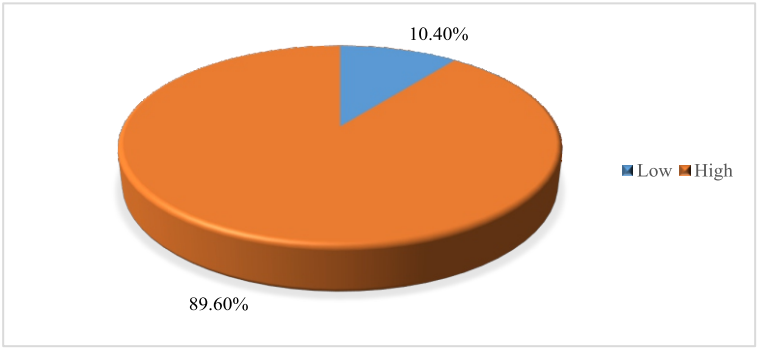


Fig 1: Level of processors' attitudes towards oil palm wastes
Source: Field survey (2024)

Level of oil palm processing waste utilization

Table 4 shows that processors had a high level of use for wastes like palm kernel on some of the listed items, majorly indicating its usage for income generation (π =2.7) (2.9), for palm kernel oil (π =2.7) (2.7); empty fruit bunch (EFB) which was mostly used for weed control (π =2.7) (2.6) , for soap making (π =2.7) (2.7) and as mulching material (π =2.7) (2.5).

Figure 1 reveals that majority (78.40%) of the processors had generally low level of utilization, while only a few (21.60%) had a high level of utilization. This means that majority of the oil palm processors in Edo State do not really utilize the wastes generated at their mill, but dispose them indiscriminately resulting to huge loss of what could have become valuable resources, thus posing environmental and health threats. This finding corroborates the findings of Oladipo *et al.,* (2017) who found that majority (53.3 %) of farmers in Kwara State do not utilize the wastes they generate in their farms and Adeoye *et al*. (2020), who found the level of oil palm processing wastes to be relatively low, even though there are opportunities for the processors to increase utilization of wastes. the study however contradicts Ehikioya and Omoruyi (2020), who found utilization of processing wastes among processors in Edo State to be relatively high (80%).

Table 4. Level of waste Utilization (n=250)

Variables	Calyx Mean	Empty fruit Bunch Mean	Pressed palmFibre Mean	POME Mean	Palm Kernel Mean
Animal feed	1.1	0.9	1.0	1.0	1.4
flooring/road construction/rehabilitation	1.2	1.2	1.2	1.1	2.6
For paper making	1.0	1	1	1	1.1
Mulching	1.1	2.5	1.0	1.0	1.2
mushroom cultivation	1.0	1.2	1.2	1.0	1.2
Soap-making	1.0	2.7	0.9	0.7	1.6
Briquettes	1.1	1.2	1.2	1	1.2
As catalyst in some local delicacies	1.4	1.6	0.9	1.3	1.4
For Income generation	0..9	1.0	0.9	1.0	2.9
Manure	1.2	1.6	1.6	0.9	1.2
Fuel	0.7	1.2	1.9	0.7	1.7
For beautification	0.9	1.3	1.1	0.6	1.5
Weed control	1.7	2.6	1.1	1.7	1.7
Power generation	0.6	1.1	13	0.6	1.2
Palm kernel oil	1.0	1.0	1.0	1.0	2.8.

Source: Field survey (2024)

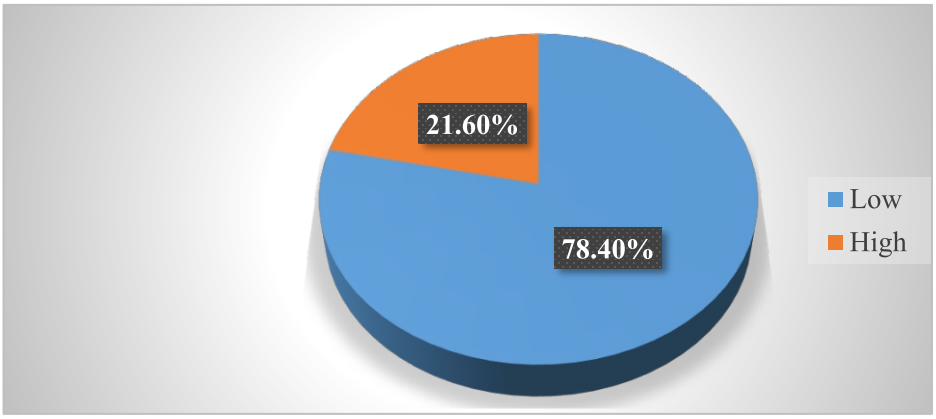


Fig 2: Level of waste utilization
Source: Field survey (2024)

Relationship between selected socio-economic characteristics and waste utilization

Table 4 reveals that at $p \leq 0.05$, only age of respondents ($r = 0.16$) and household size ($r = -0.19$) were significantly related to level of Oil palm waste utilization. The implication of the positive sign for age of the respondents is that the older a farmer becomes, the more Oil palm wastes that is utilized. This could be as a result of experience over the years or exposure to various opportunities where such wastes are needed. This relationship could also arise as a result of more responsibilities for the farmer, hence he takes advantage of any means of gaining extra income from his farming activities. Household size has a negative sign which implies that the larger the household size, the less the respondent will make use of Oil palm waste. The *apriori* expectation is that the larger the household size, the more the needs and hence the more opportunities the farmer will look for to make extra income to meet the needs, which could be from oil palm processing waste. This behavior could likely be due to poor orientation to oil palm waste utilization as a source of income. The poor orientation of processors could lead to poor attitude towards waste.

Table 4: Relationship between selected socio-economic characteristics and wastes usage

Variables	r – value	p-value
Years of processing mill in current location	-0.06	0.32
Age of the respondent	0.16	0.01*
Household size	-0.19	0.00*
Educational level	0.11	0.08
Years of processing experience	-0.03	0.60

*significant at 0.05 level of significance

Conclusion and Recommendations

Conclusion

The study concludes that oil palm processors in Edo State generally exhibited unfavourable attitudes towards oil palm processing wastes, which will generally hinder optimal utilization of the wastes. Lack of awareness, knowledge and concern for the environment and health may be possible reasons contributing to processors unfavorable attitudes.

Recommendations

The study recommends adequate sensitization and training of oil palm processors through workshops, seminars and training programs to educate processors on the benefits of wastes, including the potential for income generation and reducing environmental pollution. It also recommends support for relevant agencies to develop infrastructure and handy, affordable equipment for processing wastes.

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