International Journal of Organic agricultural Research & Development
Volume 19 (3) (2024)

CONSUMERS PREFERENCE FOR TREATED AND SEASONED WOOD PRODUCTS IN IBADAN ENVIRONMENT, OYO STATE, NIGERIA

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ABSTRACT

Wood treatment is essential in extending the durability and aesthetic appeal of wood, making it less susceptible to bio-deteriorating agents such as insects and fungi. This has implications for various wood-based industries, particularly the furniture sector. The study highlights the historical significance of wood treatment, dating back to ancient times, with methods such as oil-soaked wood being used for bridges in Greece. In modern contexts, chemicals like copper chrome arsenate and bitumen are employed to preserve wood. Through the administration of structured questionnaires to both consumers and producers in five local government areas in Ibadan, Oyo State, Nigeria. The study assessed consumer awareness and perceptions of treated wood, the price sensitivity of consumers, and their willingness to pay a premium for treated wood products. Results showed that a majority of consumers (90%) were aware of treated wood products, with 78% using them regularly. However, affordability remains a concern for some, with 56% finding treated wood to be affordable in comparison to untreated alternatives. Furthermore, 83% of consumers expressed a preference for treated wood over untreated wood, citing durability as the primary factor for their choice. The research also investigated the factors that hinder the effective use of treated wood. Issues such as the use of fake chemicals and improper wood seasoning were identified as key factors affecting the longevity of treated wood products. In terms of willingness to pay extra for treated wood, 68% of consumers indicated that they would spend more due to the benefits of durability and improved aesthetics. Producers, on the other hand, expressed a strong preference for treated wood, with 72% agreeing on its necessity. However, 28% of producers still believed that untreated wood could be used if it was well-dried or matured. The producers' attitude toward wood treatment was largely influenced by customers demand, with 76% of producers treating wood based on customer requests. The study concludes that consumer preferences for treated wood are driven by its extended lifespan and aesthetic qualities. It is recommended that the Nigerian government should subsidize chemical preservatives to reduce costs for producers. Additionally, the government should regulate the cutting of immature trees and invest in developing the wood market in Nigeria. Moreover, raising awareness about the proper handling of preservative chemicals is critical to dispelling fears of potential health risks associated with wood treatment. This research provides valuable insights into the wood product market in Ibadan, highlighting the need for both governments intervention and improved industry practices to encourage the use of treated wood products for sustainable development.

Keywords: Consumers Preference, Treated Wood Product, Seasoned Wood, Ibadan

INTRODUCTION

In general, wood as a solid log or lumber is an essential raw material for all wood industries. The furniture industry exceeds all other industries in the number and types of raw materials required. For instance, the furniture industry requires veneer, lumber, plywood and particleboard produced by other wood based panel industries within the sector. Wood remains a major raw material for furniture manufacturing despite the incursion of plastics, glass and aluminum (Olorunisola, 2005). Wood is naturally a very durable substance, if not attacked by living organisms; it will last for hundreds, or even thousands of years.

Also wood is biodegraded (a process whereby a material of biological origin loses its original value). This could be evident in terms of reduction in the strength (structural), mechanical and physical value of the wood. Bio-deteriorating agents are the organisms that destroy wood and affect wood in service or in the field. They include; (I) Insects -the most prevailing destroying insects are Termites, Borers, Beetle, Fungi, and the activities of these organisms are aggravated when wood is at high moisture content. Wood seasoning is aimed at reducing the moisture content in wood to the required moisture content in service. While fungicides and insecticides, are chiefly used in wood treatment industries and to some extent in the furniture industry.

Current national demand for these pest and fungal control chemicals is 160 metric tonnes representing only 31 % of the sectors installed capacity (RMRDC, 2004).

Some of the common insecticides/fungicides used for preservative treatment of lumber and poles are copper chrome- arsenate (CCA), dieldrex and bitumen. Wood preservatives are chemicals that have the potency of increasing the resistance of wood to bio-deteriorating agents which invariably prolong the number of years the wood would be put to use. Drying and treatment of wood with preservative involves capital investment which adds to cost of production of treated wood, thus increasing the price at which the products are made available to consumers. In Nigeria and many other developing economies, pricing is very vital to consumer behavior, developing a viable market for treated wood requires a detailed analysis of the ultimate consumers of wood products and their behaviours with respect to the wood quality attributes which can attract extra price for a commodity. Therefore, the objective of this research was to investigate the preference of the consumers to treated wood with a view to providing information on wood market development.

MATERIAL AND METHODS

Ibadan is the capital city of Oyo State and the third largest metropolitan area in Nigeria, after Lagos and Kano, with a population of 1,338,659 according to the 2006 census. Ibadan is also the largest metropolitan geographical area at Nigerians independence Ibadan was the largest and' most populous city in the country and the third in Africa after Cairo and Johannesburg. The city is located in South-Western Nigeria, 128 km inland northeast of Lagos and 530 km southwest of Abuja, the Federal Capital Tertitory is a prominent transit point between the coastal region and the areas to the north. Ibadan had been the centre of administration of the old Western Region since the days of the British colonial rule, and parts of the city's ancient protective walls still stand to this day. The principal inhabitants of the city are the Yoruba people, most of whom are Christian. Ibadan has a tropical wet and dry climate, with a lengthy wet season and relatively constant temperatures throughout the leteto dethe year. Ibadan's, wet season runs from March through October, though August sees somewhat of a lull in precipitation. This lull nearly divides the wet season into two different wet-seasons. The remaining months forms the city's dry season. Like a good portion of West Africa, Ibadan is located in southwestern Nigeria about 120 km east of the border with the Republic of Benin in the forest zone close to the boundary between the forest and the savanna. The city ranges in elevation from 150 m in the valley area, to 275 m above sea level on the major north- south ridge which crosses the central part of the city. The research was carried out in some selected places in Ibadan. Two different structured questionnaires were designed; one was administered to the consumers while the other was administered to the producers. Five Local Governments Areas were randomly selected in Ibadan Metropolis. The local Governments are Ibadan North, Akinyele, Lagelu Local Government, Ibadan North West, and Ibadan North East. Wood preservation industries were randomly selected in each of the selected Local Government Areas.

The wood industries that were selected in each of the local governments areas are preservation section of Bodija, Moniya, Orita Challenge, Mokola and Iwo road preservation section of Planks market. Data for this study were obtained from both the consumers and the producers in five Local Government Area in Ibadan. Hundred copies of questionnaire were administered to the consumers, while hundred copies of questionnaire were also administered to the producers making a total of two hundred questionnaires administered to both respondents. A total of twenty each were administered to the selected wood industries in each of the Local Government Area that serves as the producers. For the consumers, the questionnaires were randomly administered within the area of study. Questionnaire was administered to collect information with a view to achieving the stated objective, while Descriptive and Chi Square analysis were used to analyze the data.

Demographic characteristics of respondents

Table I above shows the frequency and percentage distribution of both the consumers and the producers by gender, age categories, educational level, marital status, religion and main occupation.

The results showed that male and female accounted for 64% and 36% respectively, which shows that male consumed treated wood products than their female counterparts. Results further showed that male producers accounted for 98% while only 2% are female, which shows that the job of wood treatment is dominated by the male and the reason being that the male have more power and they are active.

Respondent's qualification

The frequency and percentage distribution shows that the highest qualification for consumers is tertiary level accounts for 46% while 52% of the consumers are married. The highest qualification for producers is primary level and is accounted to be 54% while 72% of the producers are married. The result showed that 54% of the consumers are Christians, while 32% are Muslims,2% is recorded for the traditionalists and the remaining 12% goes for missing system. The highest frequency of their main occupation was civil servants which is 53%. For the producers, the result shows that 31 % are Christians, 69% are Muslims and their main occupation varies from carpentry, furniture making and cabinet making which all accounted for 48%, 30% and 16% respectively.

Awareness of the consumers on treated and seasoned wood products

Table 2 above shows the frequency and percentage distribution of the awareness and perception of the consumers on treated wood products. This results shows that 90% of the consumers are aware of treated wood, while just 10% are not aware of treated wood and 78% of the consumers make use of the treated wood products.

In comparing the price of treated to untreated wood products, 56% of the consumers agree on the price being affordable, and they prefer using treated wood products to untreated. The results shows further that 76% of the consumers will still go for treated wood products for the fact that it is more expensive compare to the untreated wood products. Perhaps because of its durability.

Consumers View on wood treatment and seasoning.

Table 3 above shows the frequency and percentage distribution of the of the consumers views on wood treatment and seasoning. The result showed that 89% of the consumers agreed that treating of wood beautifies it, 81% said it increases the lifespan, while 89% agreed that treating of wood protects it from insects attack and 80% confirmed wood treatment prevents wood from swelling and shrinking.

Factors hindering treated and seasoned wood not meeting expected life span.

Table 4 above shows the frequency and percentage distribution of the consumers views on the factors responsible for treated wood not meeting the expected service life. The result showed that 55% of the consumers were of the opinion that fake chemicals contribute to the factors for not meeting the expected service life, 60% said when it is not properly seasoned, while 50% says lack of experience can also limit the expected service life. This implies that wood not properly seasoned had higher proportion in the study.

Willingness to pay extra money

Table 5 above shows the frequency and percentage distribution of the consumers' willingness to pay extra money on treated wood products, the result showed that 68% of the consumers were willing to spend extra money on treated wood products, because of the benefit derived from it.

Place of Skill Acquisition 6

Table 6 above, shows the percentage and frequency distribution of the place where the producers learned the job, the result showed that 68% learned the job as apprentice, 26% as family lineage, while just 6% learned from school.

Sources of wood

The result shows that 66% of the woods were sourced from sawmill, while 34% are from the timber market, the reason behind this is that the wood gotten from sawmill were already processed and cheaper compare to the wood gotten from the Timber market.

Wood species

From table 8 above, the species of wood used by the producers varied, the result showed that Mansonia species shows the highest percentage of usage by the producers which is 30%, followed by Gmelina arborea which was 26% the reason being that the wood had higher proportion of resisting bio-deteriorating agent, and it last longer, while Albizia species has the lowest patronage which is 2%.

Table 9 above shows the producers view about treated and seasoned wood, 78% of the producers agreed that it was necessary to treat wood because some wood were not yet mature before harvesting, and if used without treating, it is likely to be easily attacked by deteriorating agent, while 28% says it was not necessary to treat wood, because they always make use of dried wood and matured wood.

Producers view on treated and seasoned wood

From table 10 above, the result showed the opinions of the producers being necessary to treat wood, the result showed that 56% of the producers said treating of wood prevent it from insect attack, 32% said it beautifies it while 10% say it allows for easy use. Fifty-two % of respondents believed that if matured wood is used, application of preservative treatment may not be necessary. 20% of the producers were of the opinions that when high quality wood is used, treating of wood is not necessary.

Producers' attitude to wood treatment and customers' request.

Table 11 above shows that producers had positive attitudes to wood treatment and seasoning 76% of the producers applies chemicals in treating their wood, 72% of the producers prefer selling treated wood products over the untreated ones. While 56% of the consumers requested for their wood to be treated.

Rationale for wood treatment and seasoning

Table 12 above shows the reasons behind treating all woods. From the result, 62% said it increases the service life of wood, while 38% said treating of wood beautifies it.

Why all woods are not treated

Table 13 above shows the reasons- for not treating all woods, the result shows that 47% says when wood is in good condition, there is no need of applying any treatments, 36% says once their customers do not request for it, they need not to treat it, while 12% says woods used for minor work, need not to be treated.

Customers' reaction towards using untreated and seasoned wood

From table 14 above, the result showed the reactions of the customers toward using untreated wood, 65% of the customers were not satisfied when the wood are not treated, 31 % of the customers were satisfied because they cannot afford to buy treated ones.

Customers' preference on treated wood

Table 15 above shows that majority of the customers preferred buying treated wood products even at a higher price as reflected in the table. The total of 72% while 28% considered buying at a reasonable and normal price than when the price increased.

Customers' patronage

Table 16 above shows the percentage and frequency distribution on how often the customers demanded for treated wood. The result showed that 78% of the customers frequently demanded for treated wood product while 18% rarely demanded for treated wood products.

CONCLUSION

There are few survey studies concentrating on treated wood. Smith and Sinclair, (1989, 1990) Affirmed that Customers and Builders perceptions of treated lumber products showed that the most preferred attributes were straightness, appearance, and grade. Preference for treated woods and seasoned wood in the study area was driven by the need to improve on the service life of wood. Also, consumers in the study were encouraged to use seasoned wood because of durability, aesthetics and strength. Several studies that revealed different aspects of customers' preferences for wood products have been investigated in empirical studies: producers versus customers ratings of lumber and supplier performances (Weinfurter and Hansen, 1999); lumber quality dimensions (Hansen *et al.,* 1996); lumber requirements among industrial customers at wood treating plants (Reddy and Bush 1998); consumer preferences for indoor furniture (Pakarinen and Asikainen, 2001); and preferences for specific applications or species (Jonsson 2005; Nicholls *et al.,* 2004; Dunn *et al.,* 2003). Virtually all respondents were aware of wood preservation and seasoning in the study area.

The result showed that high percentage of the consumers preferred using treated wood; they confirmed that the price of treated wood products were affordable when compared the price to untreated. Vlosky and Shupe, (2002) found that homeowners in general had a positive impression of treated wood, although a small segment were reluctant to buy treated wood because of health concerns. Similar results were also found in a later study by the same authors (Vlosky and Shupe, 2004). The authors concluded that homebuilders in general were positive towards treated wood, but there is need for better information on the handling of treated wood products.

The sawmill serves as the main source of wood species to the producers, which implies that majority of the wood species are gotten from the sawmill, The study shows that virtually all the consumers are willing to pay extra money- for treated wood. Several studies have also addressed consumer attitudes toward certification and the willingness to buy certified wood products (Ozanne and Smith, 1998; Forsyth *et al.,* 1999; Karna *et al.,* 2003; Bigsby and Ozanne, 2002; Veisten 2002; Ozanne and Vlosky, 2003; Hansmann *et al.,* 2006). These studies suggest a limited overall willingness to pay for environmentally certified wood products, but they also indicate the presence of specific segments of green customers. Willingness to commit extra money for treated and seasoned wood are not affected by age, educational background, professional affiliations and sex of respondents. However, the use of treated wood and initial cost of products had influence on willingness to pay extra cost for treated and seasoned wood for cabinet making.

RECCOMMENDATION

The government should subsidize the price of chemical preservatives so as to make it easier for wood seller to procure. Cutting of immature tree in the forest, which is being sold to the sawmill should be by implementing sanctions. The Government should enhance allocation of resources to develop the Nigerian wood products market. There should be training at the technical level in order to increase the efficiency of the wood using industries. There should be proper awareness on handling of preservative chemicals so as to remove fears of adverse effects of chemicals. Apart from the traditional merchant, effort should be made to identify and contact existing distributors and importers of various wood product that are currently being sold in the Nigerian market Gathered information on new types of treatment for wood borer and termite pest, which are prevalent in Nigeria which could assist Furniture companies in preparing wood.

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Table 1: Showing the frequency and percentage distribution of demographic information

Variables	Consumers		Producers	
Gender	Frequency	%	Frequency	%
Male	64	64.0	98	98.0
Female	36	36.0	2	2.0
Total	**100**	**100.0**	**100**	**100.0**

Source: Field Survey, 2024

Table 1.1: Duration of Years by the consumers and the producers

Variables	Consumers		Producers	
Age (yrs.)	**Frequency**	**%**	**Frequency**	**%**
30yrs	42	42.0	10	10.0
30-34yrs	41	41.0	6	6.0
35-39yrs	2	2.0	4	4.0
40-44yrs	4	4.0	20	20.0
45-49yrs	2	2.0	33	33.0
50-54yrs	3	3.0	20	20.0
55-59yrs	3	3.0	5	5.0
60-64yrs	3	3.0	2	2.0
Total	**100**	**100.0**	**100**	**100.0**

Source: Field survey, 2024

Table 1.2: The educational status of the consumers and the producers

Variables	Consumers		Producers	
Educational Level	Frequency	%	Frequency	%
Primary	2	2.0	54	54.0
Secondary	41	41.0	32	32.0
Tertiary	46	46.0	6	6.0
None	7	7.0	8	8.0
Missing Value	4	4.0	-	-
Total	**100**	**100.0**	**100**	**100.0**

Source: Field survey, 2024

Table 1.3: The marital status of Consumers and producers

Variables	Consumers		Producers	
Marital status	**Frequency**	**%**	**Frequency**	**%**
Married	52	52.0	72	72.0
Single	38	38.0	15	15.0
Divorced	6	6.0	13	13.0
Missing Value	4	4.0	-	-
Total	**100**	**100.0**	**100**	**100**

Source: Field survey, 2024

Table 1.4: Religion status of Consumers and producers

Variables	Consumers		Producers	
Religion	Frequency	%	Frequency	%
Christianity	54	54.0	31	31.0
Islam	32	32.0	69	69.0
Traditional	2	2.0	-	-
Missing Value	12	12.0	1	1.0
Total	**100**	**100.0**	**100**	**100.0**

Source: Field survey, 2024

Table 1.4 Showing the main occupation of both the consumers and the producers

Variables	Consumers		Producers	
Main occupation	Frequency	%	Frequency	%
Civil servant	53	53.0	-	-
Carpenter	-	-	48	48.0
Trader	21	21.0	-	-
Furniture	-	-	30	30.0
Driver	4	4.0	-	-
Cabinet Makers	-	-	22	22.0
Student	15	15.0	-	-
Farmer	17	7.0	-	-
Total	**100**	**100.0**	**100**	**100.0**

Source: Field survey, 2024

Table 2: Consumers awareness

Variables	Yes		No		Total (%)
	Frequency	**%**	**Frequency**	**%**	
Are you aware of treated and Seasoned wood products?	90	90	10	10.0	100.0
Do you use treated and seasoned wood?	78	78.0	22	22.0	100.0
Is it affordable, compare the price to untreated		56.0	44	44.0	100.0
Is your furniture wood treated?	76	76.0	24	24.0	100.0
Do you prefer treated wood to untreated?		83.0	17	17.0	100.0
Will you go for treated wood if it is expensive		76.0	24	24.0	100.0

Source: Field survey, 2024

Table 3: Wood treatments and seasoning contribute to the following

Variables	Yes		No	Mv	Total (%)
	Frequency		%	Frequency	%
Wood beautification	89	89.0	11	11.0	- 100.0
Shelf life increase (Durability)	81	81.0	14	14.0	5 100.0
Free from insect attack	89	89.0	7	7.0	4 100.0
Prevention from swelling and shrinkage	80	80.0	15	15.0	5 100.0

Source: Field survey, 2024 ***Mv=Missing Value**

Table 4: Factors responsible for treated and seasoned wood not meeting the expected service life

Variables	Yes		No	Mv	Total (%)
	Frequency	%	Frequency	%	
Fake chemicals	55	55.0	25	25.0	20 100.0
Not proper wood seasoning	60	60.0	21	21.0	19 100.0
Lack of experience of applying the chemicals	50	50.0	23	23.0	27 100.0

Source: Field survey, 2024 ***Mv = Missing Value**

Table 5: Willing to pay extra money by the consumers

Variables	Frequency	%
Yes	68	68.0
No	29	23.0
Missing Value	3	3.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 6: Where did the producers learn the job?

Variables	Frequency	Percentage
School	6	6.0
Apprenticeship	68	68.0
Family lineage	26	26.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 7: Wood Source

Variables	Frequency	Percentage
Sawmill	66	66.0
Timber market	34	34.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 8: Choice of wood species

Variables	Frequency	Percentage
Mansonia species	30	30.0
Nesogordonia papaventera	8	8.0
Mahogamy species	14	14.0
Gmelina arborea	26	26.0
Tectona grandis	8	8.0
Milicia exelsa	6	6.0
A lbizia species	2	2.0
Missing system	6	6.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 9: Producers View about the Necessity of Treated and Seasoned wood

Variables	**Frequency**	**Percentage**
It is necessary	72	72.0
It is not necessary	28	28.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 10: Producers opinion of necessity or otherwise.

Variables	**If necessary**		**Otherwise**	
	Frequency	**%**	**Frequency**	**%**
Insect attack	56	56.0	-	-
Matured wood	-	-	52	52.0
Beautification	32	32.0	-	-
High quality wood	-	-	20	20.0
For easy use	10	10.0	-	-
Well dried wood	-	-	25	25.0
Missing system	2	2.0	3	3.0
Total	**100**	**100.0**	**100**	**100.0**

Source: Field survey, 2024

Table 11: Attitude of producers towards wood treatment

Variables	Yes		No		Total (%)
	Frequency		%	Frequency	%
Is wood treatment base on customers' request	44	44.0	56	56.0	100.0
Do you treat all your Woods	76	76.0	24	24.0	100.0
Do you prefer selling treated Products to untreated	72	72.0	28	28.0	100.0

Source: Field survey, 2024

Table 12: Reasons for treating woods

Variables	Frequency	Percentage
For beautification	38	38.0
For durability	62	62.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 13: Reasons for not treating all woods

Variables	Frequency	Percentage
Wood in good condition	47	47.0
Customer's request	36	36.0
Woods used for Minor work	12	12.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 14: 'The reactions of customers towards using untreated and season wood

Variables	Frequency	Percentage
Non Satisfactory	63	65.0
Satisfactory	31	31.0
Missing Value	4	4.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 15: Do your customers prefer treated wood even at a higher price

Variables	Frequency	Percentage
Yes	72	72.0
No	28	28.0
Total	**100**	**100.0**

Source: Field survey, 2024

Table 16: How often do you receive customers demand for treated and season wood

Variables	Frequency	Percentage
Frequency	78	78.0
Rarely	18	22.0
Missing system	4	4.0
Total	**100**	**100.0**

Source: Field survey, 2024