Journal of Community & Communication Research
ISSN: 2635-3318
Volume 7, Number 2, December 2022
Accessible at: https://jccr.sccdr.org

AGRICULTURAL MECHANIZATION AVAILABLE FOR CASSAVA PROCESSING OPERATIONS IN AKWA IBOM STATE, NIGERIA

Nelson U. Okorie, Uwemedimo E. Okon and Kesit K. Nkeme
[1]Department of Agricultural Economics and Extension, Faculty of Agriculture, Akwa Ibom State University, Obio Akpa Campus, Nigeria.
Corresponding Author's E-mail: nelmayo2007@yahoo.com

ABSTRACT

The Ministry of Agriculture and Natural Resources of the state in March 2019 conducted a state mechanization survey exercise to find out the present level of agricultural mechanization available in the state for cassava processing operations. A stratified sampling technique was used for conducting the survey exercise in the state. Survey results revealed for the eight cassava processing operations involved showed that cassava peeling and washing operations were almost dominated by manual processing methods in all the cassava processing units visited in the state. From the data obtained on processing operations, 184 factories involved in cassava processing adopted the manual method of peeling, which represents 96.84% of the factories under study, and 174 (91.58%) factories used manual washing for the processing of cassava. Out of 190 factories, 67 (35.26%), 103 (54.21%) and 83 (43.69%) factories adopted grating, chipping, and dewatering under manual method respectively. A total of 65.20% was recorded for the manual processing method for the eight processing operations involved for cassava. It was also noted that 20% was recorded for the mechanical processing method for the eight (8) cassava processing operations involved as grating, dewatering, and milling operations contributed to this figure. It is recommended that the state should encourage cassava processors the use cassava processing machines to boost cassava processing operations in the state.

Keywords: *Cassava processing, Manual operation, Cassava processing machines*

INTRODUCTION

In most countries in sub-Saharan Africa, agriculture is the engine room for economic growth as it contributes substantially to their Gross Domestic Product (GDP), source of foreign exchange earnings, food security, poverty alleviation, employment source, and raw material for agro-industry(Food Agricultural Organization(FAO) 2016, Onyeneke, 2017). In Nigeria, particularly the southern part, among the multifarious crops cultivated by the smallholder farmers farming population, cassava production stands prominent (Udensi et al., 2012: IAR&T.2012; National Root Crop Research Institute (NRCRI), 2016). Cassava is well-endeared to the farmers through the possession of certain attributes, including resistance to adverse environmental factors such as poor soil fertility, thriving under drought conditions, and resistance to pests and diseases (Ume, et al:2015) can be processed into a variety of products, cheap and readily available energy resource all year round Ezeano, et al., 2018). The importance of cassava in household food security provision, income generation, source of employment, poverty alleviation, livestock feed, and industrial raw material is well documented (IAR&T,2012; Idrisa et al., 2018, Ume *et al*.;2020).

The production of cassava in Nigeria increased from 9.17 million tonnes in 1971 to 60 million tonnes in 2020 growing at an average annual rate of 4.25%.

DATE	VALUE	CHANGE, %
2020	60,001,531,00	0.99%
2019	59,411,510.00	6.34%
2018	55,867,727.00	1.45%
2017	55,068,732.00	-7.55%
2016	59,565,916.00	3.34%
2015	57,643,271.00	2.33%
2014	56,328,480.00	18.82%
2013	47,406,770.00	-6.95%
2012	50,950,292.00	10.31%
2011	46,190,248.00	8.60%
2010	42,533,180.00	15.51%
2009	36,822,248.00	

Source: FAO, 2022

Nigeria only accounts for 0.001% of the world's cassava export markets (Tijani and Thomas, 2011). Therefore, the objective of this research study is to assess the present status of the level of agricultural mechanization available for cassava processing in Akwa Ibom state. The promotion of cassava for export is important to increase foreign exchange earnings (Olukunle, 2016). For this reason, there is a need to investigate the level of our readiness in promoting the export of cassava products to other countries. Hence, the need to conduct a state mechanization survey exercise among agro-processors in cassava processing operations in Akwa Ibom State of Nigeria.

METHODOLOGY

Study Area

The study was conducted in Aka Ibom state in the South region of Nigeria. It is located at latitude $4^{0}32^{'}$N and $5^{0}33$'N of the equator and longitude $7^{0}25^{'}$E and $5^{0}25^{'}$E of the Greenwich meridian. Farming is the major occupation of the people who normally produce cassava, maize, plantain, banana, fluted pumpkin, water leaves, and rearing livestock like poultry, goats, sheep, cattle, grass cutters, rabbits, and fishing.

SAMPLING TECHNIQUE

Primary data were collected through a structured questionnaire that was administered to 190 respondents. Data obtained from the 190 respondents were subjected to descriptive statistical analysis involving frequency count and percentages. The SPSS Statistical Package of version 25.0.0.0 was used for the computation.

RESULTS AND DISCUSSION

The results in table 1 examined the level of Agricultural mechanization in cassava processing.

Table 1 indicates the distribution of respondents according to the level of agricultural mechanization in cassava processing in Akwa Ibom State. From the data obtained on processing operations, 184 factories involved in cassava processing adopted the manual method of peeling, which represents 96.84% of the factories under study, and 174 (91.58%) factories used manual washing for the processing of cassava. Out of 190 factories, 67 (35.26%), 103 (54.21%) and 83 (43.69%) factories adopted grating, chipping, and dewatering under manual method respectively. For drying and gratification, 142 (74.74%) factories applied the manual method while 128 (67.37%) adopted the manual method. 67 factories adopted the manual milling method and 167 factories used the manual method for bagging cassava processed in the factories.

On the other hand, 6 (3.17%), 12 (6.32%), and 107 (56.32%) factories adopted mechanical methods of peeling, washing, and grating respectively. The factories that used a mechanical method of processing for chipping, dewatering, and drying were 26 (13.68%), 86 (45.26%), and 8 (4.21%) respectively. Also, 27(14.21%) and 67 (35.26%) factories adopted the mechanical method of gratification and milling, while 3 (1.58%) factories made use of mechanized bagging systems. Comparatively, the

mechanical methods of grating and dewatering were mostly used by factories in Akwa Ibom State, while the rest of the processing operations were mostly manual methods.

On the whole, 65.20% of the factories adopted manual methods of processing operations, 20% of the factories adopted mechanical methods of processing operations, and 14.8% were undecided about the processing operations.

Table 1: Distribution of respondents according to the level of agricultural mechanization in cassava processing in Akwa Ibom State

Processing operations	Level of agricultural mechanization					
	MN		MC		UD	
	A	B (%)	A	B (%)	A	B (%)
Peeling	184	96.84	6	3.16	Nil	Nil
Washing	174	91.58	12	6.32	4	2.10
Grating	67	35.26	107	56.32	16	8.42
Chipping	103	54.21	26	13.68	61	32.11
Dewatering	83	43.69	86	45.26	21	11.05
Drying	142	74.74	8	4.21	40	21.05
Garification	128	67.37	27	14.21	35	18.42
Milling	67	35.26	67	35.26	56	29.48
Bagging	167	87.89	3	1.58	20	10.53
Total	1115 (65.20%)	N/A	342 (20.00%)	N/A	253 (14.80%)	N/A

Key note: A=frequency count, B=frequency in its percentage value; Mn Manual operation; MC= Mechanical operation; UD= undecided; N/A= Not Applicable

CONCLUSION AND RECOMMENDATIONS

In conclusion, and based on my objective, 65.20% of the factories adopted manual methods of processing operations, while only 20% of the factories adopted mechanical methods of processing operations. It could be inferred from the study that the use of mechanical methods of processing cassava by farmers is very low. Akwa Ibom state government is hereby called upon to encourage cassava processors on the use of cassava processing machines for boosting cassava processing operations in the state. State government can come in by assisting these cassava processors with start-up capital and revolving loans facility which can be used to procure cassava processing machines for use in their various organizations.

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