

ANALYSIS OF THE ADOPTION RATES OF WATERMELON ENTERPRISE IN OGBA/EGBEMA/NDONI LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA

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Abstract

The study was focused on the analysis of the adoption rates of watermelon in Ogba/Egbema/Ndoni Local Government Area (ONELGA) of Rivers State, Nigeria. A total of 72 respondents, selected through snowballing and simple random sampling techniques were used in the study. Data obtained were analyzed, using percentages, mean scores and t-test for test of significance. The findings showed that: Majority of the dealers of watermelon in Ogba/Egbema/Ndoni local government area adopted the marketing of the fruits much more than the production in a subsistence scale. It revealed that eighty-six percent of watermelon products, especially the fruits traded and consumed in the area were usually brought from outside the area and most of the farmers involved in watermelon enterprise in the area were middle adult women who do not acquire formal education above secondary. It further shows that the adoption rate of watermelon was low both in production and in marketing, hence the dependency on outside supply to meet the consumption needs of the consumers of watermelon in the area. The major constraints to the adoption of watermelon in ONELGA were: Inadequate information about the watermelon enterprise (production, processing and marketing as well as its economic profitability), high cost of transporting the fruits from outside, lack of accessible credit facilities for farmers and the perception of watermelon enterprise by the people as a business for the poor. The t-test result showed a t-cal of (0.56) which was less than t-critical (1.69) at 0.05 significant level, which led to the acceptance of the null hypothesis, meaning that there is no significant difference between the watermelon producers and the marketers as regards the constraints to adoption of watermelon in ONELGA. The study therefore, recommended that farmers in the area including men and youths should be meaningfully encouraged through grants and soft loans to produce watermelon in commercial quantities and the Agricultural Transformation Agenda as an avenue to make credits available to farmers through the E-Wallet should be extended to ONELGA for farmers to access.

Key words: Adoption Rate, Watermelon, Enterprise, Rural area.

Introduction

Watermelon (*Citrullus lanatus*) has been proved to be one of the most widely cultivated crops in the world at large and its global production in 2002 reached 89.9 million mega grams (FAO, 2003, Huh *et al.*, 2008). It was reported that China is the leading country in production of watermelon followed by Turkey, United States, Iran and Republic of Korea (Huh *et al* 2008; Wehner and Maynard, 2003). There are over 1,200 varieties of watermelon grown all over the world and quite a number of these varieties are also cultivated in Africa (Zohary and Hopf, 2000). The global consumption of the crop is greater than that of any other cucurbit. According to Adeoye *et al* (2007) and Oguntola, (2006), watermelon is the most preferred in terms of cost and return among five other exotic vegetables (such as cucumber, pumpkin, waterleaf and eggplant) examined in Ibadan Metropolis of Oyo State, Nigeria. Recent report indicated that exotic vegetables production, especially watermelon and cucumber generate higher profit, provided more employment and income to the farmers than those of indigenous vegetables. Knowledge of availability of aggregated farm level resources and differences in their productivities are essential in order to enhance productive capacity of the smallholder farmers (Ajewole and Folayan, 2008). These qualities provide enough advantages for the adoption of watermelon by farmers in Ogba/Egbema/Ndoni local government area (ONELGA) of Rivers state.

Adoption is seen as the first or minimal level of behavioural utilization (Rogers, 2003). It is a way of accepting an idea or custom and use. It means accepting an idea or an enterprise that is new to existing practice for the purpose of improvement. It is one of the stages in a learning process and is characterized by a large scale continuous use of the idea and eventual satisfaction towards the practice (Emah, 1996). The author further explains that adoption is a continuous process and can occur either by direct or indirect influence. It is direct influence when an institution, organization, group of experts, etc noted for positive changes effect the adoption of the new practice or innovation. On the other hand, adoption by indirect influence or what is known as “cultural diffusion” occurs when people adopt a new practice without the influence or assistance from the change agents. The circle of adoption widens when farmers within the vicinity of the change agent are found to have copied him.

Adoption of an enterprise is dependent on the cost involved and the expected benefits in addition to adequate awareness, provided the innovation conforms to the custom and culture of the people. Watermelon is a fruit vegetable that almost everybody is in love with and cherishes to eat. Recent report indicated that exotic vegetables (like watermelon and cucumber) production generate higher profit, provide more employment and income to the farmers than those of indigenous vegetables, Knowledge of availability of aggregated farm level resources and differences in their productivities are essential in order to enhance productive capacity of the smallholder farmers (Ajewole and Folayan, 2008, In: Adeoye *et al*, 2011). It is easy to cultivate watermelon as a sole crop and as an inter crop with other crops like cassava, yam and maize (Adeoye *et al*, 2011). It requires a sandy loam soil which is not different from the soils in Ogba/Egbema/Ndoni Local Government Area. There is no much stress in handling its cultural practices, and has a short gestation period of three months to its advantage.

The fruit is bulky and perishable if not timely stored. It may attract cost of transportation and storage if it is to be imported from outside the area. With the simplicity of its production and high demand for the fruits, one expects that the production of this fruit vegetable should have been adopted in the area by the farmers and produced in commercial quantities for the immediate consumers within and outside the area. Analysis of the adoption of watermelon is necessary

because fruits of watermelon are everywhere along the roads, streets and in every market in ONELGA but its farms are not seen as much in the study area. If the trading of watermelon fruits or its farming or both, is/are adopted, this study would be able to show it in the end. The study wants to know who are the watermelon dealers in the area? What is the adoption rate of watermelon enterprises in the area? What are the constraints to the adoption of watermelon enterprise in the area? Or are the fruits being sold and eaten in the area imported from outside the study area by the traders?

Materials and Methods

Ogba/Egbema/Ndoni Local Government Area (ONELGA) is one of the 23 Local Government Areas in Rivers State created out of the former Ahoada Local Government Area on September 21, 1991. With headquarters at Omoku mainland, it is the second largest industrial and commercial town in the state (Odinwa & Nlerum, 2015). ONELGA occupies a land mass of 1,621 square kilometer with a projected population of 350,000 people residing across the various communities. It lies between latitude 5° 25N and longitude 3° 14E and is located at the extreme North – Western fringe of Rivers State. Adopting a descriptive survey approach, six (6) communities (2 each from the three clans that make up ONELGA) were randomly selected. From the 6 communities a sample frame of 150 farmers were drawn using snowballing sampling procedure. Out of these, a total of 72 farmers were randomly selected through random numbers and used for this study.

Data were collected through the administration of a structured questionnaire and interview schedules. Both descriptive and inferential statistics were employed in data analyses. Descriptive statistics such as percentage and weighted mean scores derived from Likert rating scale were used. The inferential statistics used was student's t-test. Objectives 1 and 2 were achieved using percentages, while objective 3 was achieved using mean statistics. The inferential statistics used was to ascertain if the views of those who adopted the production of watermelon and those that adopted the marketing of it differed significantly.

Results and Discussion

Watermelon Dealers in Ogba/Egbema/Ndoni Local Government Area (ONELGA) of Rivers State

From the findings in Table (1), it showed that majority of the dealers of watermelon in ONELGA engaged more in marketing of the fruits (72%) than in the production (11%). This implies that consumption of watermelon is much more pronounced in the area than its production and the reason for the scarcity of the products many a time, hence the high cost of the fruits in the area.

Secondly, the finding showed that 53% of watermelon products, especially the fruits traded and consumed in the area were usually brought from outside the area, which is an indication that Ogba/Egbema/Ndoni local government area like her mother, Nigeria, is a rentier local government which depends largely on royalties from the natural endowment without adding reasonable value to nature. This finding supports Alli (2007) who classified Nigeria based on production as a rentier state, since it survives largely on rents from naturally occurring resources like petroleum and other mineral resources.

Table 1: Frequency Distribution of Watermelon Dealers in ONELGA Rivers State Variables

Variables	Frequency (N=72)	Percentage (%)
Production of watermelon fruits in the area (only)	08	11
Produce and sale watermelon in the area	04	06
Sales of watermelon fruits produced in the area	14	19
Sales of watermelon fruits produced outside the area	38	53
Sales of watermelon juice only	05	07
Process and sale of watermelon fruits and juice	03	04

Source: Field Survey, 2015

Rate of Adoption of Watermelon Enterprise in ONELGA

The major finding in this aspect (Table 2) is that few of the farmers involved in the actual production of watermelon in the area were producing at the output level of less than 150 fruits per farming season, implying a low adoption rate, which is a chronic peasantry of producing from hand to mouth. This confirms the reason for depending on outside supply to meet the consumption needs of the consumers of watermelon in the area and the eventual high cost of the fruits in the area.

Also, the result shows that the majority of them (86%) that were involved in the marketing of the products bought and sold quantities less than 150 fruits of watermelon per trip, another indication of a low adoption rate. This could be attributed to the bulky and perishable nature of the fruits, which defines the degree to which a practice is perceived as relatively difficult to understand and to adopt negatively related to its rate of adoption as noted by Rogers (2003), as well as cost of transporting them from far distances in the face of poor and dilapidated motorable roads or routes to the area.

Table 2: Percentage distribution of respondents on the rate of adoption of watermelon enterprise in ONELGA

S/No	Size of Farm (Measured in the No. of Fruits produced)	Frequency	Percentage
1.	Output range of your farm is between 1 - 150 fruits per season	8	80
2.	Output range of your farm is 151 - 300 fruits per season	2	20
3.	Output range of your farm is 301 - 450 fruits per season	-	0
4.	Output range of your farm is above 450 fruits per season	-	0
	Total	10	100
S/No	Size of Market (Measured in the No. of Fruits sold)	Frequency	Percentage (f)
5.	Quantity you buy and sold is above 450 fruits/trip	3	05
6.	Quantity you buy and sold is between 301 – 450/trip	6	10

7. Quantity you buy and sold is between 151 – 300/trip	12	19
8. Quantity you buy and sold is below 150/trip	41	66
Total	72	100

Source: Field Survey, 2015

Constraints to Adoption of Watermelon in ONELGA

The major constraints to the adoption of watermelon in ONELGA as shown in Table (3) were: Inadequate information about the watermelon enterprise (production, processing and marketing as well as its economic profitability), high cost of transporting the fruits from outside, lack of accessible credit facilities for farmers and the perception of watermelon enterprise by people as a poor business. Information is the key factor that can arm, transform and regenerate an individual, a family, a clan, a state and a nation, where it is lacking the entire system will remain in a state of coma with negative perceptions. Therefore, lack of proper awareness of the economic viability of watermelon accounts for its low adoption in the area.

Secondly, the result showed that techniques involved in the production is not rigorous; cost of production is not high; customs of ONELGA do not forbid watermelon production, marketing and consumption; returns from the inputs employed in the production is not low; it has short gestation period of about three months; government policies are not against the production and marketing of watermelon; and that demand for watermelon is encouraging its supplies in the area. These factors are capable of propelling the adoption of watermelon enterprises in the area if proper awareness of its handling and profitability has been created.

Table 3: Mean distribution of the respondents on Constraints to adoption of watermelon in ONELGA

Constraints	Watermelon Producers N = 10		Watermelon marketers N= 62		Grand Mean	Remark
	Weighted Scores	Mean Scores	Weighted Scores	Mean Scores		
Land acquisition challenge	31	3.10	180	2.90	3.00	Accepted
Soil condition of the area (ecological zone)	27	2.70	161	2.60	2.65	Accepted
Techniques involved in the production	22	2.20	130	2.10	2.15	Rejected
High cost of Production	18	1.80	93	1.50	1.65	Rejected
Perception of watermelon enterprise as a poor business	31	3.10	173	2.79	2.95	Accepted
The custom of ONELGA forbids watermelon production	11	1.10	74	1.19	1.15	Rejected
Low returns from the inputs employed	17	1.70	93	1.50	1.60	Rejected
Inadequate information about the watermelon enterprise	32	3.20	192	3.10	3.15	Accepted

Gestation period of watermelon discourages the production	16	1.60	112	1.80	1.70	Rejected
Lack of incentive and insecurity in the area	29	2.90	167	2.69	2.80	Accepted
Lack of accessible credit facilities for farmers	31	3.10	198	3.19	3.15	Accepted
Pests and diseases problem	25	2.50	174	2.81	2.66	Accepted
Unavailability of labour	17	1.70	92	1.48	1.59	Rejected
Stealing of watermelon fruits discourages the production	28	2.80	198	3.19	3.00	Accepted
Government policies are not favourable to watermelon enterprises	21	2.10	118	1.90	2.00	Rejected
Demand for watermelon is not encouraging	18	1.80	99	1.60	1.70	Rejected
Supply is more than the demand in the area	16	1.60	111	1.79	1.70	Rejected
High cost of transportation	31	3.10	223	3.60	3.35	Accepted
Bulkiness and perishability of the fruits discourage its marketing	25	2.50	197	3.18	2.84	Accepted
Seasonality of the products affects its supply	29	2.90	205	3.31	3.11	Accepted
Supports from cooperatives / associations	17	1.70	136	2.19	1.95	Rejected

Source: Field Survey, 2015

Cut-off point = 2.5.

Mean score \geq 2.5 is

accepted

The t-test result in Table (4) showed a t-cal of (0.56) which is less than t-critical (1.69) at $P \geq 0.05$ significant level. This led to the acceptance of the null hypothesis, meaning that there is no significant difference between the mean scores of the watermelon producers and the marketers of watermelon as regards the constraints to adoption of watermelon in ONELGA.

Table 4: Summary of t-test Result on the difference in Constraints to adoption of watermelon between the producers and marketers in ONELGA

Source	N	Mean	df	Variance/Sd	t-cal	t-tab	Remark
Producers	21	2.34	39	0.43/0.66			NS
Marketers	21	32.40		0.55/0.74	0.56	1.69	
Total	42						

NS – Not Significant at $P \geq 0.05$

Source: Field Survey, 2015

Conclusion

The result of the study showed that majority of the dealers of watermelon in Ogba/Egbema/Ndoni local government area adopted the marketing of the fruits or the juice much more than the production in a subsistence scale. It revealed that fifty-three percent of watermelon products, especially the fruits traded and consumed in the area are usually brought from outside

the area, which is an indication that Ogba/Egbema/Ndoni local government area is one of the rentier local government areas in Nigeria.

The findings also show that the adoption rate of watermelon is low both in production and in marketing, hence the dependency on outside supply to meet the consumption needs of the consumers of watermelon and the eventual high cost of the fruits in the area.

The major constraints to the adoption of watermelon in ONELGA as revealed by the study were: Inadequate information about the watermelon enterprise (production, processing and marketing as well as its economic profitability), high cost of transporting the fruits from outside, lack of accessible credit facilities for farmers and the perception of watermelon enterprise by the people as a business for the poor.

Recommendations

Based on the findings, this study recommends the following:

1. Adequate awareness of the profitability of watermelon enterprises, through the existing extension agencies like the Green River Project of the Nigerian Agip Oil Company, Total E & P Rural Sustainable Development and the Department of Agricultural Education of the Federal College of Education (Technical), Omoku should be consciously created in the area,
2. Agricultural Transformation Agenda as an avenue to make credits available to farmers through the E-Wallet should be extended to ONELGA for farmers to access.
3. Farmers should be schooled and helped to form and participate actively in farmers cooperatives for their mutual benefits.

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