

Gender Assessment of Watermelon Production among Farmers in Ibarapa Area of Oyo State

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Abstract

The study conducted gender assessment of watermelon production among farmers in Ibarapa area of Oyo state. One hundred and thirty-two respondents were randomly selected. Data collected were analysed using descriptive and inferential. The result revealed that 66.4% of the respondents were males, 70% were educated, 69.5% were married and 88.3% fell between ages 30-50 years, 46.9 percent had 6-10 years of experience. 93% male were involved in weeding than their female counterparts. However, more female (81.3%) were involved in carting of watermelon from the farm than males. But accessing credit is a major constraint that limits the production of both male and female (mean = 1.9, 1.8) while radio ranks first amongst the sources of information utilised by both male and female (mean = 1.36, 1.30), water melon farmers. The t-test analysis reveals significant difference between the roles performed by male and female farmers in watermelon production. ($t = 7.578, p = 0.000$), and between income generated from watermelon by both male and female farmers. ($t = 4.448, p = 0.028$). Conclusively males are more involved in watermelon production and the tedious activities while females are more involved in harvesting and marketing. It is recommended that the provision of improved technology, low interest rate loans will encourage both men and women's involvement.

Keywords: Gender, Gender inequality, Gender needs, Gender roles, Watermelon

1.0 Introduction

Gender is described as a socio-economic parameter that is useful in analyzing the roles, responsibilities, opportunities and constraints of both men and women along different ethnic, religion and ecological lines (Ayoola and Odiaka, 2004). Welch (2002) stated that gender affects the distribution of resources, wealth, work, decision making, political power as well as the enjoyment of rights and entitlements within the family and in public life. According to international women policies the basic problem in is the structurally unequal power relations between women and men. In this understanding, being a man or a woman, is neither fixed nor biologically or naturally given, but a social construction.

Gender inequality remains a problem that has characterized the Nigerian agriculture (Olagunju *et al.*, 2012). Thereby given women and men different roles and access to resources, it is essential that agricultural projects take gender differences into account. Also, women and men face differing constraints and opportunities especially in terms of their needs, and access to, services and programs.

Watermelon has now become a prominent crop being planted by majority of farmers in recent years (Adeoye *et al* 2007), and have become a very important source of income for small scale farmers in most rural communities in Nigeria (Ajewole and Folayan, 2008).

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Previously, only the high class could afford to buy watermelon fruit which is sold in whole fruit mainly in groceries shops. But in recent times the fruit is now generally acceptable, accessible and affordable by the high, middle and low class of the society because it is now being sold by grocery hawkers who often sell retail cuts (half, quarter or some smaller arced shaped) which is readily available and coupled with the awareness of its high nutritional content. This makes watermelon one of the most consumed fruit, and hence makes the production of watermelon more profitable for men and women.

1.1 Methodology

The study was carried out in Ibarapa area of Oyo State which, consists of the following 3 local government areas; Ibarapa Central, Ibarapa North, Ibarapa East. The areas are peculiar for horticultural crop production and a large percentage of the inhabitants are farmers. Ibarapa Central Local government has an area of 440 km² and a population of 102,979 (NPC, 2006). The Ibarapa North Local government has an area of 1,218 km² and a population of 101,092 (NPC, 2006), while Ibarapa East Local government has an area of 838 km² and population of 118,226 at (NPC, 2006).

A sample frame of 440 registered watermelon famers was obtained. Thirty percent of the population in each of the three local government areas was randomly selected proportionately, making a total of 132 respondents out of the population. Primary data were collected with the use of a pre-tested questionnaires and interview schedule. The data collected were analyzed using descriptive statistics and inferential statistics.

2.0 Results and Discussions

The result in table 1a shows that majority (66.4%) of the farmers were men, while 33.6 percent were women. The implication is that male dominated watermelon farming in the study area. This result corroborates the findings of Adeoye *et al* (2011) that male folk dominate watermelon production.

The table also shows that majority (37.5%) of the respondents were between 21-30 years. It could be inferred that there was a predominance of medium aged people among the watermelon farmers with mean age of 37 years. This agrees with findings of Adeoye *et al* (2011) which revealed that young and middle-aged individuals who are active and innovative are involved in watermelon production. The implication of this is that watermelon cultivation was carried out mostly by the middle-aged people. Majority (69.5%) of watermelon farmers were married. This corroborates with Oludipe (2009) findings that majority of rural work forces are married. This implies that watermelon farmers had family responsibilities and financial commitment. So, farmers in rural communities engaged in early marriage to raise families to support in farm labour.

Majority (69.5%) of the respondents had at least one form of education or the other. This agrees with the findings of Adeoye *et al* (2011) that watermelon farmer has high literacy level in Oyo state. The average household size of watermelon farmers in the study area was less than 5 persons with highest value of 39.8 for less than 3 persons. This disagrees with the findings of Adeoye *et al* (2011) which stated that household size of watermelon farmers are large and household members of a rural area form a part of their labour. The implication is that watermelon farmers do not have large household size in the study area

Table 1a: Distribution of respondents by selected socio-economic characteristics

Variables	Male n=85 Freq (%)	Female n=43 Freq (%)	Total Freq (%)
Sex			
Male	85 (66.4)	- -	85 (66.4)
Female	- -	43 (33.6)	43 (33.6)
Age			
21-30 years	35 (27.3)	13 (10.2)	48 (37.5)
31-40 years	20 (15.6)	17 (13.3)	37 (28.9)
41-50 years	20 (15.6)	8 (6.3)	28 (21.9)
51-60 years	7 (5.5)	2 (1.6)	9 (7.0)
above 60 years	1 (0.8)	3 (2.34)	4 (3.1)
Mean	36.6000	37.7674	36.9922
Mode			Male*
Marital status			
Married	55 (42.96)	34 (26.6)	89 (69.5)
Single	26 (20.3)	5 (3.91)	31 (24.2)
Widowed	4 (3.13)	4 (3.13)	8 (6.3)
Mode			Married*
Educational Qualification			
Non formal	26 (20.3)	13 (10.2)	3 (30.5)
Primary	28 (21.9)	17 (13.3)	45 (35.2)
Secondary	28 (21.9)	13 (10.2)	41 (32.0)
Tertiary	3 (2.34)	-	3 (2.3)
Mode			Primary education*
Household size			
Less than 3	35 (27.3)	16 (12.5)	51 (39.8)
3-5	22 (17.2)	14 (10.9)	36 (28.1)
6-8	23 (17.96)	12 (9.4)	35 (27.3)
Above 8	5 (5.9)	1 (0.8)	6 (4.7)
Mean	4.2471	4.6744	4.3906

Source: Field survey, 2017 Note: Values in asterisks implies mode.

Table 1b shows that majority (46.9%) of the respondents had farming experience of 6-10 with an average farming experience of 9 years, this is in line with the findings of Adeoye *et al* (2011) that average farming experience of watermelon is 6 years. The implication is that most of the respondents do not have long period of farming experience.

The result also shows that most (44.5%) of the respondents had 3-5 acres. The farm size mean is 4 acres. This agrees with Olayide (1980) findings that small-scale farmers had between 0.1-5.99 hectares. This implies that respondents in the study area are small scaled farmers. Majority (63.3%) of the farmers produce watermelon on a part time bases while 36.7 percent of the respondents cultivate watermelon solely on a full time bases. This agrees with findings of Adeoye *et al* 2007 that watermelon has now become a very prominent crop being planted by majority of farmers in recent years and have become a very important source of income for small scale farmer in most rural communities in Nigeria (Ajewole and Folayan, 2008) This implies that most of the respondents produce watermelon to diversify from their primary occupation to make ends meet and only cultivate watermelon to generate more income.

The study also indicated that very few of the respondents were civil servants, with more male (4.7%) earning an annual average income of ₦19905.00. Forty-six percent were involved in business, where more male (13 percent) than female (6.3 percent) earn between 200,000 - 499,999. The result also reveals that male farmers earn more from engaging in business (\bar{x} = ₦235623.00) than female farmers (\bar{x} = ₦141767.00). This implies that men earn more from business. While 18.1 percent engage in other farm enterprise. With more female (5.5 percent) and few male (3.9 percent), earning between 70,001-150,000.

The result also shows that female farmers earn more from other farm enterprise ($\bar{x} = ₦92651.00$) than male farmers ($\bar{x} = ₦67105.00$). This agrees with the findings of Nwowu (2002) and Ajani (2008) that women dominate and play essential roles in production, processing, marketing initiatives and activities in this sector of rural economy. Though Mohammed and Abdulquadri, (2012) indicated that both male and female participate in food crop production in Nigeria and classified men and women crops, but Ukeje (2004) showed uncommon distinction between male and female crops and indicated that women contributed most of the labour in planting crops like maize, cassava, cowpea, melon and rice. While male farmers planted mainly yam which was considered a male crop, which was used to measure the success of men in farming. This implies that involvement of more women in farming enterprises could be responsible for earning more from engaging in other farm enterprises than men.

Table 1b: Socio-Economic Characteristics of Respondents N = 128 (Continue)

Variables	Male n= 85 Freq (%)	Female n=43 Freq (%)	Total Freq (%)
Farming experience			
1-5 years	19 (14.8)	13 (10.2)	32 (25.0)
6-10 years	39 (30.5)	21 (16.4)	60 (46.9)
11-15 years	17 (13.3)	6 (4.7)	23 (18.0)
16 years and above	10 (7.8)	3 (2.3)	13 (10.2)
Mean	9.38	8.34	9.03
Farm size			
less than 3 acre	26 (20.3)	18 (14.1)	44(34.4)
3-5 acre	42 (32.8)	15 (11.7)	57(44.5)
6-8 acre	5 (3.9)	6 (4.7)	11(8.6)
9 and above	12 (9.4)	4 (3.1)	16 (12.5)
Mean	4.73	4.67	4.43
Mode of operation			
full time	32 (25.0)	15 (11.7)	47 (36.7)
part time	53 (41.4)	28 (21.9)	8 (63.3)
Mode	Part time*	Part time*	Part time *
Income from other activities (annually)			
Civil servant			
Not involve	79 (61.7)	42 (32.8)	121 (94.5)
less than 70,000	1 (0.78)	1 (0.78)	2 (1.6)
above 70,000	6 (4.7)	- -	5 (3.9)
Mean	₦19905.00		₦ 13218.75
Business			
not involve	41(32.0)	28 (21.9)	69 (53.9)
less than 200,000	7 (5.5)	3 (2.3)	10 (7.8)
200,000-499,999	17 (13.3)	8 (6.3)	25 (19.5)
500,000-799,999	12 (9.4)	2 (1.6)	14 (10.9)
800,000 and above	8 (6.3)	2 (1.6)	10 (7.8)
Mean	₦235623.00	₦141767.0	₦ 204093.75
Other farm enterprise			
not involve	75 (58.6)	30 (23.4)	105 (82.0)
less than 70,000	- -	2 (1.6)	2 (1.6)
70,001-150,000	5 (3.9)	7 (5.5)	12 (9.4)
150,001-230,000	1 (0.78)	- -	1 (0.8)
above 230,000	4 (3.1)	4 (3.1)	8 (6.3)
Mean	₦67105.00	₦92651.0	₦ 75687.50

Source: Field survey, 2017 Note: Values in asterisks implies mode.

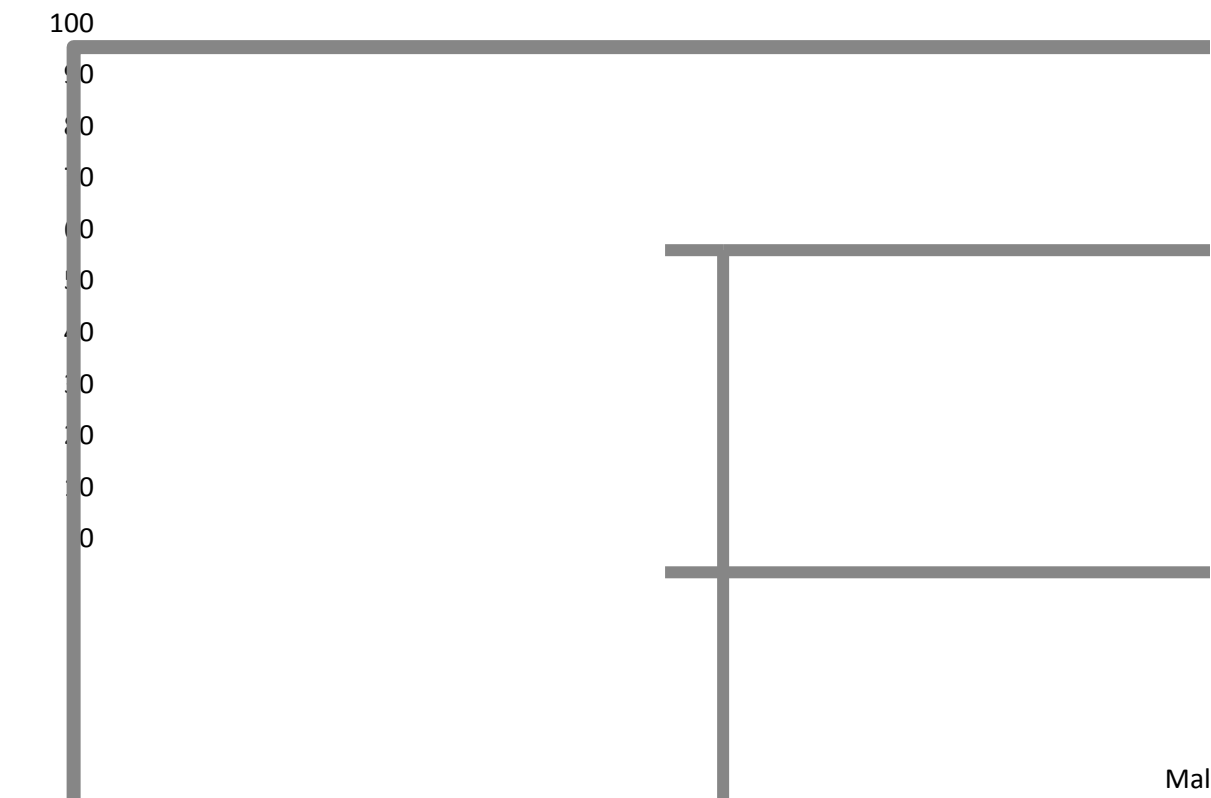
The results in Figure 1 show that few respondents participated in land clearing activities. More males (22.7 percent) were involved in land clearing activities than the female farmers (0.8 percent). This corroborates the findings of Mohammed and Abdulquadri (2012) that men perform major role in physical activities like clearing. This could be attributed to the tedious task involved in land clearing activities. Few male (4.7 percent) make bed for watermelon while females are not involved at all. This agrees with the findings of Sahel, (2014) that men execute tedious tasks such as land clearing, falling of trees gathering, burning of bush, and making of ridges, while women engaged in planting, weeding, harvesting, on-farm processing and selling of farm produce. This is an indication that large proportion of water melon farmers in the study area does not make ridges for water melon production. Though both male (94.5 percent) and female (78.1 percent) were involved in planting of watermelon. This finding is in consonance with, Odebode (2007) that both men and women are actively involved in melon production. This shows that both men and women are actively involved in cultivation of water melon in the study area.

The result also shows that more (93.0 percent) male were involved in weeding while less (47.7 percent) female weed. This finding negates that of Daudu *et.al* (2015) who reported that female crop farmers were more involved in weeding activities than male crop farmers. This shows that more males were involved in weeding in the study area. The disparity in weeding activities may be attributed to its tedious nature coupled with the use of primitive tools. All male (100.0 percent) apply fertilizer while more than half (57.0 percent) of female apply fertilizer. This does not differ much from spraying where 100.0 percent male were involved in spraying while few (18.8 percent) female were involved in spraying. This agrees with the finding of Oluyole and Lawal (2010) that operations such as chemical application were mostly undertaken by men. This implies that fertilizer application and spraying is a tedious or hazardous task so it is mostly undertaken by men. Both male (93.8 percent) and female (75.8 percent) were involved in the harvesting process. Though more (81.3 percent) female and less male (32.0 percent) are involved in packing watermelon from the farm. This study agrees with Rugumammu (2009) finding that women are more involved in post harvesting activities. This implies that both male and female harvest and pack watermelon but women were more involved in post-harvest activities.

More (11.7 percent) female and male (3.1 percent) were involved with storage. But Adedokun (2000) categorized women's contribution as producers, distributors, processors, storers and marketers of agricultural products and puts in many or more hours than men in fisheries and other agricultural activities. This is an indication that water melon farmers in the study area lacked storage facilities. Which could further exposed water melon farmers to huge losses

More (79.7 percent) female were involved in marketing than male (64.1 percent). This finding is in consonance with Yahaya (2002) that women engage more in marketing activities. This implies that most of the products are disposed by women.

Figure 1: Distribution of Involvement in different activities



Source: Field survey, 2017

Table 2 shows that most (82.4%) of the male respondents and female (76.7%) respondents spend a range of 50001-150000 on watermelon production annually with average cost of (\bar{x} = ₦118501.17) and (\bar{x} =₦106976.74) for male and female respectively.

This varies a little bit from the cost of the normal staple crop planted in the study area which is yam as stated in Oguntade *et al* (2010) findings that ₦150500 is being spent on production of yam per hectare. While the result also revealed that majority (62.8 percent) of the female respondents and 43.5 percent male have annual yield of 6-10 tons per acre, with average yield of (\bar{x} = 8.0294) and (\bar{x} = 7.3721) for male and female farmers respectively. This is in line with FAO (2011) that yields on plots managed by women tends to be lower than those managed by men as a result of their limited or low access to the farm inputs, land etc. Although Oguntade *et al* (2010) stated that 3-5 tons of yam is produced per hectare This implies that men invest more in their watermelon production than women, they also have capacity and resources to engage in watermelon production than women Therefore it could be responsible for the reasons why men had more yield than the women, which could also be attributed to male’s access to farm lands but the yield from the production of yam is not up to that of watermelon produced by both male and female.

Though more (34.9 percent) female respondent had revenue of ₦600001-800000 than male (9.4 percent) while more (32.9 percent) male respondents had above ₦800000 than female (14.0 percent). But average revenue of \bar{x} = ₦699294.11 was recorded for male and \bar{x} = ₦ 573953.48 for female. This differ from Oguntade *et al* (2010) findings that ₦ 337500.00 is the revenue generated for yam per hectare in Oyo state. This implies that higher revenue is being generated from the watermelon production than yam which was formally the major crop they usually plant before in the study area by both male and female watermelon farmers.

Also more (31.8 percent) male earn between ₦200,001-400,000 from watermelon annually than female (23.3 percent), while 28.2 percent male and few (4.7 percent) female made above ₦800000, with average income of (\bar{x} = ₦581145.88) and (\bar{x} = ₦480930.23) for both male and female respectively. But Oguntade *et al* (2010) stated in their finding that income of ₦187000 was generated for yam.

This finding is in consonance with the findings of Erie *et al.*, (2011) that the male farmers earned more income than the female farmers. Though male invest more than their female counterpart they also earn more than them but certainly the returns from watermelon is higher than that obtained from yam production. This could be the reason why more famers in the study area now cultivate watermelon more than yam for fast income.

Table 2: Distribution of respondents' level of income generated from watermelon production by male and female

Variables	Male			Female		
	Freq	%	Mean	Freq	%	Mean
Annual cost of production(₦:K)						
less than 50,000	4	4.7		3	7.0	
50001-150000	70	82.4	118501.17	33	76.7	106976.74
150001-200000	10	11.8		7	16.3	
above 250000	1	1.2		-	-	
Total	85	100.0		43	100.0	
Annual yield (tonnes)						
1-5	22	25.9		10	23.3	
6-10	37	43.5	8.0294	27	62.8	7.3721
11-15	23	27.1		6	14.0	
16 and above	3	3.5		-	-	
Total	85	100.0		43	100.0	
Annual Revenue (₦:K)						
less than 200000	8	9.4		4	9.3	
200001-400000	18	21.2		7	16.3	
400001-600000	23	27.1		11	25.6	
600001-800000	8	9.4	699294.11	15	34.9	573953.48
above 800000	28	32.9		6	14.0	
Total	85	100.0		43	100.0	
Annual income (₦:K)						
less than 200000	17	20		8	18.6	
200001-400000	27	31.8		10	23.3	
400001-600000	13	15.3	581145.88	12	27.9	480930.23
600001-800000	4	4.7		11	25.6	
above 800000	24	28.2		2	4.7	
Total	85	100.0		43	100.0	

Source: Field survey, 2017

Table 3 shows that radio ranks first amongst the sources of information utilized by both male (mean = 1.36), and female (mean = 1.30), water melon farmers. This finding is in line with Muhammad and Garforth (2001) that radio is the major source of agricultural information. Thus, radio in essence often does not require high educational qualification or back-ground to be effective. Followed closely by information from neighbors with Mean of 1.13 (male) and 1.10 (female). This finding is in consonance with Nwachukwu and Odoemelam (2004) that television viewing in developing countries has great scope for timely research and action.

This suggests that respondents in the study area also source for information through interpersonal means. Television ranked third among the sources of information utilized by male (mean = 0.93) and female (mean = 0.79) water melon farmers in the study area.

Sourcing information from Extension Agents ranked 4th with mean of (male= 0.65, female=0.70) This disagrees with the findings of a Jock and Gerson (2003) that extension service has a significant contribution to farming, which shows that watermelon farmers in the area do not often source information from extension agents. And this implies that extension service has no significant contribution as source of information to watermelon production.

However, internet and newspaper ranked 5th and 6th with mean = 0.18 and 0.14 for male respectively and mean 0.0 for female in both sources of obtaining information's This finding agrees with Hassan *et al.* (2009) that most farmers rarely source agricultural information from the internet. But both were not considered as important sources of information among water melon farmers in the study area. Due to the low and lack of internet usage among water melon farmers in the study area which could be attributed to low skills or expertise in using the advance technology, lack of time spent on ICT and difficulties in using ICT. This implies that both male and female watermelon farmers obtain majority of their information from radio due to easy access to radio.

Table 3: Distribution of respondents' access to information on water melon production

Source of information	Male					Female				
	Never	Sometim es	Regularl y	Mean	Rank	Never	Sometime s	Regularl y	Mean	Ran k
Radio	4.7	55.3	40.0	1.36	1 st	-	72.1	27.9	1.30	1 st
Television	15.3	76.5	8.2	0.93	3 rd	25.6	69.8	4.7	0.79	3 rd
Extension Agents	36.5	62.4	1.2	0.65	4 th	30.2	69.8	-	0.70	4 th
Newspaper	89.4	7.1	3.5	0.14	6 th	100.0	-	-	0.0	5 th
Internet	87.1	8.2	4.7	0.18	5 th	100.0	-	-	0.0	5 th
Neighbours	-	87.1	12.9	1.13	2 nd	4.7	83.7	11.6	1.10	2 nd

Source: Field survey, 2017

Table 4 shows that inadequate credit facilities ranked first among the constraints that both male (mean = 1.9) and female (mean = 1.8) watermelon farmers face in the study area. In addition, both male and female water melon farmers were faced with lack of storage facilities which was ranked second by male (mean = 1.5) and third by female (mean = 1.4). This could further result in post-harvest losses and consequently affects farmers' income. They were also faced with the problem of shortage of labour however, with slight variations as it ranks second among female farmers (mean = 1.48) and third among male farmers (mean = 1.47). Followed closely is the inadequate extension service ranked fourth both by male and female farmer (mean = 1.38, 1.37)

This agrees with the findings of Anselm *et al.*, (2010) that women are faced with many constrains such as lack of access to credit, loans, low level of income, to shortages of input supply and other economic resources, but the result in the study area implies that both male and female in the study area have constrains not only females though the female might have more constraints militating against them than their male counterparts.

Table 4: Constraints to watermelon production

Constrains	Male			Mean	rank	Female			Mean	Rank
	Not a const rain (%)	Mild const rain (%)	sever e const rain (%)			Not a cons train (%)	Mild const rain(%)	sever e const rain (%)		
Inadequate source of information	1.2	62.4	36.5	1.3529	6 th	-	62.8	37.2	1.3721	4 th
Lack of credit	1.2	4.7	94.1	1.9294	1 st	-	11.6	88.4	1.8837	1 st
Poor marketing	1.2	89.4	9.4	1.0824	8 th	-	86.0	14.0	1.1395	7 th
Poor transportation system	1.2	62.4	36.5	1.3529	6 th	-	86.0	14.0	1.1395	7 th
Lack of storage facilities	-	48.2	51.8	1.5176	2 nd	-	53.5	46.5	1.4651	3 rd
Lack of processing technology	1.2	61.2	37.6	1.3647	5 th	-	65.1	34.9	1.3488	5 th
Inadequate extension services	1.2	58.8	40.0	1.3882	4 th	-	62.8	37.2	1.3721	4 th
Inadequate access to seed procurement	14.1	72.9	12.9	0.9882	9 th	4.7	81.4	114.0	1.0930	8 th
Labour shortage	3.5	45.9	50.6	1.4706	3 rd	-	51.2	48.8	1.4884	2 nd
Inadequate technical know how	4.7	67.1	28.2	1.2353	7 th	-	79.1	20.9	1.2093	6 th
Inadequate farming implement	62.4	30.6	7.1	0.4471	10 th	67.4	27.9	4.7	0.3721	9 th

Source: Field survey, 2017

2.1 Hypotheses of the study

Table 5 indicated that there is a significant difference between the roles performed by male and female farmers in watermelon production. ($t = 7.578$, $p > 0.05$), with mean ($\bar{x} = 7.0391$) contrast of men to mean ($\bar{x} = 4.8750$) roles that women perform. Thus, the null hypothesis is rejected, since p-value (0.000) is less than significance level of 0.05. Therefore, the implication is that the role performed by men in water melon production differs from that of women.

Table 5: Test of difference between the roles performed by male and female farmers in watermelon production.

Roles performed	N	M	S.D	F	DF	P value	Remark	Decision
Roles performed by men	128	7.0391	1.77206	7.578	127	0.000	S	Reject null
Roles performed by women	128	4.8750	1.83148					

NS – not significant

S – significant

Table 6 shows that there is a significant difference between income generated from watermelon by male and female farmers at $t = 4.448$, $p > 0.05$), with male farmers having an average income of ₦581145.88 in contrast to female farmers' average income of ₦480930.23. Hence the null hypothesis is rejected since p-value of $p = 0.028$ is less than significance level of 0.05. Thus, the implication is that income generated from water melon production by male is more than that generated by female farmers.

Table 6: Test of difference between incomes generated from watermelon by male and female farmers.

Income generated	N	Mean	Std. Deviation	F	Df	P value	Remark	Decision
Income generated by male	85	581145.88	518591.28	4.448	126	0.028	S	Reject null
Income generated by female	43	480930.23	219521.27					

NS – not significant

S – significant

3.0 Conclusion and Recommendations

The study found that males were more involved in water melon production activities than the female farmers. Though they are active, young and middle-aged individuals, and mostly diversifying into watermelon production for more and fast income. Also, males were more involved in tedious activities such as land cleaning, weeding, fertilizer application and spraying, while females were more involved in farming activities such as, packing and marketing. But males had more yield, made more revenue and earned more income than female. However, the major constraint they have is accessing credit or loan for their production.

The study recommends that Women can be encouraged to be more involved in many activities where men alone function, through the provision of improved technology and technical know-how and so on. Government should ensure that men and women have equal access to farm inputs such as fertilizer, sprayers, seeds etc. Also, farmers should be able to have access to credits and loans with low interest rate, by making agricultural loan policies.

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