

Implications Of Manual Farming On The Health Of Rural Farmers In Ifedore Local Government Area, Ondo State, Nigeria.

Odefadehan, O.O

Dept. of Agricultural Extension and Communication Technology,
Federal University of Technology, Akure.

E-Mail: ooodefadehan@futa.edu.ng Phone: 07066419900

Abstract

The study assessed manual farming and its perceived implications on the health of rural farmers. The study ascertained farming practices performed manually, determined the attitude of respondents towards manual farming and determined access of farmers to agricultural extension services. The study was carried out in Ifedore Local Government Area of Ondo State Nigeria. One hundred and fourteen respondents were randomly selected for this study with the aid of pre tested structured questionnaire. Chi-square was used to test the stated hypothesis. Waist pain ranked first as the greatest implication of manual farming to the farmers based on spearman ranking. Finance was the challenge faced by most of the respondents. The chi-square analysis showed that there was significant relationship between the age of the respondents and manual farming ($\chi^2=170.5$; p-value of 0.000.) also between marital status and manual farming ($\chi^2=246.1$; p-value 0.000). The study concluded that manual farming has serious implications on the health of the farmers in which waist pain ranked highest with mean value of 4.29. The study recommended that the government effort should be channelled towards making technologies available for the farmers at subsidized rate. Private-Public partnership in agricultural credit scheme should be encouraged to assist in funding mechanized farm operations.

Key Words: Manual, farming, rural, farmers, mechanized and health

INTRODUCTION

Everywhere around the world, agricultural production is central to the overall well-being of the populace. This is why the nation's places a high premium on agriculture and the strive to develop and protect the sector, for sustainable food production, and industrial growth. Agriculture has been the leading provider of employment in Nigeria providing employment for more than 60% of the Nigerian population especially in the sixties and seventies (Asoluka and Okezie, 2011). Despite the high percentage of the labour in agriculture even till this twenty first century, most of the farming activities are carried out manually with local implements.

The use of crude implement, makes agriculture production in the rural area drudgery. Implements such as shovel, hoe, Cutlass, are used during different cultural practices. Several health issues arising from farmworker ranges from muscle and eye injuries, dislocation and fractures (Hofmann, Crowe, Postma, Ybarra and Keifer, 2009). A farming operation like plant protection (the use of herbicides, pesticides, and fertilizer) which are operated by pressure through nozzles or by centrifugal force, if not carefully operated will result in skin exposure to irritation. The other farm operations done manually which can have an adverse effect on the health of the farmers include; irrigation, weeding, harvesting, threshing, and

winnowing. These physical work definitely affects the farmers' health. The National Centre for Farmworker Health states that "hard physical work and working with heavy machines are promoters of musculoskeletal injuries in the farm work". (National Centre for Farmworker Health, 2013).

Health and agriculture are interdependence; affecting each other. If the rural farmers are not healthy they will not be able to practice agriculture effectively and efficiently. Agriculture supports the health by providing food and nutrition for the people and income that can be spent on health care. Modern-day forms of farming include the use of mechanical ploughing, plastic mulches, and chemical fertilizers and so on which has enabled a substantial increase in production. Most of the farmers in rural Nigeria are peasant farmers that are poor and cannot afford to pay for some of the modern equipment.

In rural areas in Nigeria, there is still much to be done, to prevent injuries and improve the health status of those in the rural areas. Rural farmers have an increased prevalence of many acute and chronic health conditions including cardiovascular and respiratory diseases, arthritis, skin diseases, stress, body pains, headache, on-the-farm Injury, snake bites, organic dust among others. Most of these health conditions are prevalent because the farmers work manually with little or no

mechanization and safety measures. Different methods of carriage involved carrying loads on the head, hip, back, and or the shoulder. (Melvin, 2017).

Injuries due to strains and sprains affect the back and cause ergonomic stressors. Ergonomic stressors include forceful exertions, pinching, stooping, prolonged static postures, awkward positions, continual bending and twisting at the waist while handling excessive or asymmetrical weights (Meyers, Miles, Faucett, Janowitz, Tejada, & Kubashimi, 1997)

According to the Fourth European Working Conditions Survey carried out in 2005, 35% of all workers are exposed to the risk of carrying or

moving heavy loads for at least a quarter of their working time. The highest exposure rates are found amongst skilled agriculture and fishery workers, craft and related trades workers, plant and machine operators and assemblers. Young workers reportedly are the most exposed of all ages (EWCS, 2005). It is therefore important to know the consequences of manual farming on the health of farmers in Ifedore Local Government Area, Ondo State, Nigeria. This is necessary as most literature available are studies carried out in the Western Nations.

Objectives of the Study

The broad objective of the study was to determine the implications of manual farming on the health of the respondents in the Study Area while the specific objectives were to:

- identify farming practices performed manually by the respondents;
- determine the attitude of respondents towards manual farming;
- ascertain health problems posed by manual farming and
- determine access of farmers to agricultural extension services.

METHODOLOGY

The study was carried out in Ifedore Local Government Area of Ondo State. The headquarters of the Local Government is Igbara - Oke. It covers an area of 295km² and a population of 176,327 at the 2006 census. It is one of the 18 LGA in Ondo State. The state has total land area of 14,793 square kilometres and its administrative capital is Akure. The state is located in South-Western Nigeria and shares boundary with Ekiti, Kogi, and Kwara in the North, Edo and Delta in the in the East; Oyo, Osun and Ogun States in the West and in the South by the Atlantic Ocean. According to city population (2017), the population of the state in 1991 census figure was 2,255,723 while the projection for 2016 was 4,671,700. The climate is characterized by heavy rainfall. The state economy is basically agrarian with large-scale production of cocoa, oil palm production, kola nut, and rubber. Other crops like maize, yam, and cassava are produced in large quantities. 65% of the state labour force is engaged in the agricultural sector. The source of data for this study was primary which was collected through the use of a well-structured questionnaire with both open and close-ended questions.

Sample Size and Sampling Techniques

A multistage random sampling procedure was employed in the study. In the first stage, Ifedore Local Government Area was randomly selected from the 18 Local Government Areas in the state.

In the second stage, four communities were randomly selected from Ifedore Local Government area. They are Ijare, Ilara Mokin, Ibule and Aba-Oyo while in the third stage, 30 respondents were systematically selected from a list of registered farmers in each of the selected community. This was done through the assistance of the Block Extension Officer in Ifedore ADP. A total of 120 respondents (farmers) were randomly selected for the study. In the systematic random sampling, the farmers were chosen at an interval of three. The data collected were analyzed through frequency counts, percentages and a hypothesis was tested with chi-square. Out of the 120 questionnaires distributed, 114 copies were recovered.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Respondents

The socio-economic characteristics of respondents considered in the study are age, gender, marital status, education, religion, duration of practicing farming and household size.

From Table 1, 48.2% fell between 40 and 49 years, 40.4% were between 50 and 59 years. The result revealed that 40- 49 years has the highest percentage which is 48.2%. The mean age is 49 years. This mean age is a reflection of the fact that the farmers are in the prime of a productive age where physical strength for manual labour is still available and productivity ought to be high.

A majority (90.4 %) of the respondents were male while 9.6% of the respondents were females. It implies that most farmers in the study area were males. The females might be engaged in other domestic activities like , child caring, seasonal part-time or low-wage jobs aside farming.

In addition, 96.5% of the respondents were married, 6% of the respondents were single. This shows that most farmers were married. This reflects that marriage is held in high esteem in Africa. The rural people value marriage so much while single and separated people within the community are not accorded respect and are seen as deviant in the society especially people who are old enough to get married. Marriage is what the people of Nigeria, especially in the rural area, cherished. Married farmers could be assumed to have more hands for farming activities compared to farmers that are unmarried. These findings are similar to Odefadehan, Alfred, Onasanya, and Ogunwande (2015) where 90% of the Tilapia fish farmers in Ondo and Ekiti states were married.

In terms of education, 24.6% of the respondents completed secondary school education, 19.3% of the respondents attempted secondary school, 14.9% of the respondents had no formal education, and 12.3% of the respondents

completed tertiary institution education, 10.5% attempted tertiary institution education, 9.6% of the respondents completed primary school, 8.8% of the respondents attempted primary school. This shows that most of the respondents generally attained one level of formal education or the other except about 15% who had no formal education. Imoh and Essien (2005) reported that that farmers' level of education influences adoption of technology.

Moreover, 76.3% of the respondents were Christians, 14.9% of the respondents were Muslims and 8.8% of the respondents were traditional worshippers. This could be because Ondo State is a Christian dominated state.

A good proportion (32.5%) of the respondents had between 21 and 30 years farming experiences, , 26.3% had between 11 and 20 years of farming experiences. The mean farming experience was 24 years. The long years of farming experiences ought to have influenced the migration of the farmers from the use of manual farming to mechanized farming.

. From Table 1, 43.0% of the respondents had between 7 and 9 members in their household, 42.1% of the respondents had between 4 and 6 members, and 11.4% of the respondents had more than 9 people in their household. The mean household size is 7. It shows that most of the farmers have large household sizes. The large household sizes could influence their use of manual labour for farming.

From Table 1, 83.3% of the respondents do not have access to extension workers and their non-accessibility to Agricultural Extension Agents may be responsible for the high level of manual labour usage on their farms

Table 1: Distribution of Socioeconomic Characteristics of Respondents

Variables	Frequencies	Percentages	Mean
Age			
20-29	2	1.8	49
30-39	6	5.3	
40-49	55	48.2	
50-59	46	40.4	
60-69	5	4.4	
Total	114	100.0	
Gender			
Male	103	90.4	
Female	11	9.6	
Total	114	100.0	
Marital Status			
Single	3	2.6	
Married	110	96.5	
Separated	1	.9	
Total	114	100.0	
Highest Educational Level			
No Formal Education	17	14.9	
Attempted Primary School	10	8.8	
Completed Primary School	11	9.6	
Attempted Secondary School	22	19.3	
Completed Secondary School	28	24.6	
Attempted Tertiary Education	12	10.5	
Completed Tertiary Education	14	12.3	
Total	114	100.0	
Religion			
Christian	87	76.3	
Islam	17	14.9	
Traditional	10	8.8	
Farming Experience			
1-10	16	14.0	24
11-20	30	26.3	
21-30	37	32.5	
31-40	28	24.6	
Above 40	3	2.6	
Total	114	100.0	
Household Size			
1-3	4	3.5	7
4-6	48	4	
7-9	49	43.0	
Above 9	13	11.4	
Total	114	100.0	
Access to Extension Agents			
Yes	19	16.7	
No	95	83.3	
Total	114	100.0	

Source: Field Survey, 2014

Challenges Faced by Farmers

From Table 2, the majority of the respondents (61.4%) faced the challenge of inadequate funds, this was closely followed by high cost of inputs, poor infrastructures, and poor labour supply as recorded by 60, 43.9, and 23.6% of the

respondents respectively. This implies that most of the farmers' challenges are inadequate funds. Adequate fund is very important to boost production and acquire other necessary inputs in any enterprise.

TABLE 2 Types of Challenges Faced by the Farmers

	Frequency	Percentage
Inadequate Finance	70	61.4%
Inadequate Labour	27	23.6
Poor Infrastructure	50	43.9
Fulani herdsman invasion of farm	14	12.3
High cost of inputs	68	59.6

Source: Field Survey (2014)

** Sum is greater than 100% because of multiple responses

Farming Practices and Methods Used

The results in this section ascertained the various practices the farmers use and how it is done whether manually or mechanically.

Table 3 shows that all the respondents cleared the land and did stumping manually with the aid of cutlass, hoe and pickaxe. Also, 99.1% of the respondents performed ridging manually with hoes and shovel. Conversely, only 0.9% of the respondents performed ridging mechanically. This confirms the fact that the farmers in Ifedore LGA are still at the level of manual farming using high energy demanding implements.

In terms of rigging, digging and harvesting, 100% of the respondents performed planting, digging and harvesting manually using their hand and other local farm implements. This reveals that even though there has been mechanized technology for planting and harvesting crops (mechanical planter and harvester), none of the farmers has adopted their use. This could be as a result of their being peasant farmers who may not be able to afford these expensive types of machinery.

From the result in Table 3, 70.2% of the respondents apply fertilizer manually and 22.8% of the respondents performed this operation in a semi-mechanized way by using sprayers, this is

easily done with liquid organic fertilizers. Most of the respondents still prefer the traditional method of ring application method since most of them use inorganic fertilizer.

Also, 90.4% of the respondents control pest and diseases using semi mechanized method of knapsack sprayers and 9.6% of the respondents performed this operation mechanically using tractor mounted sprayer. This implies that pest control by the farmers is still at the semi mechanized stage.

All the respondents performed drainage manually by digging trenches with shovel and hoes while non performed drainage mechanically using the dredging machine. This implies that a lot of energy and time is wasted by farmers.

In terms of processing, 61.4% of the respondents process their farm products manually and 38.6% of the respondents claimed that at least a stage of the processing is done mechanically with motorized machines. This shows that the percentage of farmers embracing mechanical processing is fairly high when compared with other farming activities. This might be because of the availability of locally fabricated low cost processing machines

Table 3: Farming Activities and Methods Used

Clearing And Stumping	Frequencies	Percentages
Manual	114	100.0
Mechanical	-	00.0

Total	114	100.0
Ridging		
Manual	113	99.1
Mechanical	1	0.9
Total	114	100.0
Planting, Digging, And Harvesting		
Manual	114	100.0
Mechanical	0	100.0
Total	114	100.0
Fertilizer Application		
Manual	80	70.2
Mechanical	26	22.8
Others	8	7.0
Total	114	100.0
Pest Control		
Manual	103	90.4
Mechanical	11	9.6
Total	114	100.0
Drainage		
Manual	114	100.0
Mechanical	0	0.0
Total	114	100.0
Processing		
Manual	70	61.4
Mechanical	44	38.6
Total	114	100.0

Source: Field Survey (2014)

Perceived Implications of Manual Farming on Farmers' Health

Table 4 shows that waist pain ranked first as the greatest implication of manual farming activities. This could be explained by the fact that the waist supports the upper part of the body and different types of motion like bending, twisting for clearing, weeding and cutting are all anchored on the waist for support. The waist of the farmer is the pivot for most manual activities. Cuts from cutlasses and

other sharp implement ranked 2nd. These injuries are common during clearing, weeding, and ridging and could be avoided if farming is mechanized. The least ranked implication of manual farming was short lifespan for farmers. The farmers did not perceive that manual farming could lead to a short life span, some of them opined that manual farming brings longevity.

Table 4: Perceived Implications of Manual Farming on Health of Respondents

S/ N	STATEMENTS	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE	TOTAL	MEAN	RANKING
1	Manual farming causes farmers to develop waist pain	47 (41.2%)	56 (49.1%)	8 (7.0%)	3 (2.6%)	0 -	114	4.29	1 st
2	Manual farming causes physical injuries like cutlass cuts	33 (28.9%)	47 (41.2%)	21 (18.4%)	10 (8.7%)	3 (2.6%)	114	3.99	2 nd
3	Manual farming causes neck and wrist pain	32 (28.1%)	56 (49.1%)	20 (17.5%)	5 (4.4%)	1 (0.9)	114	3.97	3 rd
4	Farming manually causes physical exhaustion and tiredness	23 (20.2%)	63 (55.3%)	19 (16.7%)	9 (7.9%)	0 -	114	3.88	4 th
5	Exposure to Agrochemicals causes skin and eye irritation	21 (18.4%)	52 (45.6%)	27 (23.7%)	13 (11.4)	1 (0.9%)	114	3.69	5 th
6	Manual farm operations causes farmers to age quickly	28 (24.6%)	56 (49.1%)	23 (20.2%)	4 (3.5%)	3 (2.6%)	114	3.39	6 th
7	Injuries from manual activities like climbing of tree crops are always fatal and can cause permanent disability	8 (7.0%)	19 (16.7%)	47 (41.2%)	27 (23.7%)	11 (9.6%)	114	2.86	7 th
8	Manual farming operations leads early death of farmers i.e short lifespan	5 (4.4%)	19 (16.7%)	21 (18.4%)	50 (43.9%)	19 (16.7%)	114	2.48	8 th

Source: Field Survey, 2014

Attitude towards Manual Farming

From Table 5, the grand mean was taken to know the overall perceptions of the respondents. The grand mean was 3.19. This shows that many of the respondents were neutral to how manual farming implies on their health. They are neither favourably disposed nor otherwise towards manual farming. This implies that most of the respondents are undecided on the implication of

manual farming on their health; they were passive. It could be said that the respondents will leave manual farming and embrace mechanized farming if persuaded, enlightened and make technologies available at affordable rate. It also implies that most of the respondents may continue with manual farming if they are not exposed to improved technologies and provided an enabling environment for sustainability.

Table 5: Attitude towards Manual Farming

S/N	STATEMENTS	SA	A	N	D	SD	TOTAL	MEAN	DECISION
1	Farmers' health is affected negatively when farming is manual	9 (7.9%)	22 (19.3%)	11 (9.6%)	51 (44.7%)	21 (18.4%)	114	2.54	N
2	Farmers are affected by pesticide and other chemicals used on the farm when it is done manually	8 (7.0%)	40 (35.1%)	25 (21.9%)	26 (22.8%)	15 (13.2%)	114	3.00	N
3	Women farmers are prone to diseases like breast cancer when exposed too much to pesticides, herbicides and other fumes of preservatives in manual farming	13 (11.0%)	27 (23.7%)	36 (31.6%)	23 (20.2%)	15 (13.2%)	114	3.00	N
4	Manual farming has more severe implications when there are no good healthcare facilities available	16 (14.0%)	35 (30.7%)	39 (34.2%)	19 (16.7%)	4 (3.5%)	114	3.32	N
5	When Extension workers provides detailed information on correct handling of equipment this will minimize risks involved	21 (18.4%)	71 (62.3%)	17 (14.9%)	5 (4.4%)	0	114	3.95	A
6	Manual farming is better than mechanized farming	17 (14.9%)	12 (10.5%)	9 (7.9%)	53 (46.5%)	23 (20.2%)	114	2.54	N
7	Extension agents not coming around all the time and has made farmers adapt to manual farming	20 (17.5%)	51 (44.7%)	23 (20.2%)	16 (14.0%)	3 (2.6%)	114	3.58	A
8	Manual farming being practiced nowadays is not in the interest of the farmer themselves	6 (5.3%)	33 (28.9%)	59 (51.8%)	14 (12.3%)	2 (1.8%)	114	3.24	N
9	The extension agents information on mechanical farming is	3	5	7	45	54			

KEY**1.00 - 1.49 = STRONGLY DISAGREE****1.50 - 2.49 = DISAGREE****2.50 - 3.49 = NEUTRAL****3.50 - 4.49 = AGREE****4.50 - 5.00 = STRONGLY AGREE**

RESULT OF INFERENCE STATISTICS

The hypothesis was tested at 0.05 level of significance using chi-square

HO1: There is no significant relationship between respondents' selected socio-economic characteristics and manual farming. The result of the test statistics in Table 7, shows that there is a significant relationship between the sex of the respondents and manual farming. The chi-square value of 58.45 is significant at the 0.05 level of significance since p-value of 0.023 is less than 0.05. Therefore, the null hypothesis is rejected. This relationship between sex and manual farming reveals that manual farming is sex-related. This could be explained by the fact that men are more physically stronger than women as such will be able to do more physical work manually on the farm. Also, there is no significant relationship between respondents' religion and manual farming. The chi-square value of 46.6 is not significant at the 0.05 level of significance since the p-value of 0.998 is greater than 0.05. Therefore, the null hypothesis is accepted. It implies that the religion of the respondent does not determine if he or she will farm manually or mechanically. It is also shown in Table 7 equally shows that there is a significant relationship between respondent's marital status and manual farming. The chi-square value of 170.5 is significant at the 0.05 level of significance since the p-value 0.000 is less than 0.05. Therefore, the null hypothesis is rejected. This simply means that the marital status of respondents has a significant relationship with the use of manual farming. This implies that the marital status of the respondents determines if they will farm with machines or not. For instance, a woman farmer may need the approval of her husband to acquire machines or labour saving devices for her farm operations; a male farmer may need to consult his spouse on what type machinery to invest in. Family priorities are most times with input from both husband and wife.

The result from Table 7, shows that there is no significant relationship between the

educational level of the respondents and manual farming. The chi-square value of 247.9 is not significant at the 0.05 level of significance since the p-value of 0.254 is greater than 0.05. Therefore, the null hypothesis is accepted. This means that educational level of respondents does not determine the use of manual farming. Respondents may practice manual farming regardless of his or her level of education. This reveals that even being educated is not alone determinant on the use of a technology; the affordability of such technology could also be a crucial determinant.

It is shown in Table 7 that there is a significant relationship between respondent's household size and manual farming. The chi-square value of 124.1 is significant at the 0.05 level of significance since the p-value of 0.008 is less than 0.05. Therefore, the null hypothesis is rejected and the alternative is acceptable. The relationship between these two variables is that the household size of a respondent determines if he or she will use manual farming or mechanized farming. The implication of this is that how big or small the household size is, can determine the practice of manual farming i.e. a big household can use manual since more hands are available.

According to Table 7, there is a significant relationship between age of the respondents in years and manual farming. The chi-square value of 246.1 is significant at the 0.05 level of significance since the p-value of 0.000 is less than 0.05. Therefore, the null hypothesis is rejected and the alternative is accepted. This shows that the practice of manual farming is determined by age. At an older age, it could gradually become difficult to carry out some farming practices manually. In addition, younger farmers may be interested in using mechanized farming compared to the older farmers who are stuck to the old ways of manual farming. The young farmers may see it as a less productive method as such will explore better ways to reduce drudgery and increase productivity

Table 7: Chi-square Results of Socioeconomic Characteristics and Manual Farming

Variables	Chi-square value	the p-value	DF	Decision
Sex	58.45	0.023	39	Significant
Religion	46.6	0.998	78	Not significant
Marital status	1170.5	0.000	78	Significant
Educational level	247.9	0.254	234	Not significant
Household size	124.9	0.008	117	Significant
Age	246.1	0.000	156	Significant

Source: Field Survey (2014)

CONCLUSION

The study assessed manual farming and its perceived implications on the health of the farmers in Ifedore Local Government Area of Ondo State and concluded that manual farming is perceived to have implications on the health of the farmers mostly causing waist pain. The greatest challenge faced mostly by the respondents was inadequate finance to acquire improved technologies that will limit the drudgery faced by farmers.

RECOMMENDATION

Based on the findings of the study, the following is recommended:

Non-governmental agencies should collaborate with government in providing funding and machines that would help in mechanized farming at highly subsidized rates.

Agricultural extension services should be strengthened by recruiting more committed staff that is highly motivated to visit the farmers regularly.

what of the provision of tractor hiring units and the farmers working together as themes to access the machineries.

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