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EFFECT OF FADAMA I PROJECT ON GREENLEAF (*Amaranthus cruentus)* PRODUCTION IN OREDO LOCAL GOVERNMENT AREA OF EDO STATE, NIGERIA

D.U. Okoedo-Okojie and C.O. Edeoghon

Department of Agricultural Economics and Extension Services, Faculty of Agriculture, University of Benin, P.M.B. 1154, Benin City, Nigeria

ABSTRACT

The study assessed the effect of Fadama I project on Amaranthus Cruentus production in Oredo Local Government Area of Edo State Nigeria. Data were collected from 70 randomly selected fadama and non fadama farmers with the aid of a questionnaire and analysed using frequency counts, percentages, mean and t-test. Majority (54.3%) of fadama farmers were female, and 51.4% were between 20 and 29 years. Majority (74.0%) had outputs of above 400kg. There was significant difference ($t = 9.17$, $p > 0.05$) between output of fadama and non-fadama farmers. It was concluded that fadama farming has positive effect on the output of Amaranthus cruentus. The study recommended that fadama programme be extended to other rural communities to achieve balanced agricultural development.

Key words: Fadama farming; *Amaranthus cruentus*; Outputs; Constraints

INTRODUCTION

The word 'fadama' is a Hausa name for wetland which means 'Akuro' or 'Abata' in Yoruba. Fadama is a low-lying flood plain with easily accessible shallow ground water. Though, the surface of these flood plains becomes dry during the dry season, appreciable amount of water can be exploited from shallow aquifers that abound around the plain by drilling, leading to the development of tubewells. The water obtained from the tubewells is used for the development of small-scale irrigation schemes to boost dry season crop production (Adegbite and Oluwalana, 2002). According to Adesoji *et al* (20O6), fadama lands usually get flooded naturally but the term is also applied to areas where people have channeled or pumped water for their farms or other purposes(such as fisheries). The National Fadama Development Project Phase I (NFDP-I) in Edo state started in 1996 under the state Agricultural Development Programme according to Aviomoh (2005), the primary objectives of the National Fadama Development Project phase 1 (NFDP-1) include to: encourage dry season farming; improve agricultural production in crops, livestock, Fisheries etc; and improve on the income, output and living standard of rural people. The project also contributes to alleviation of poverty, improved yields, high productivity, increased income, ai(also creates job opportunities. Increased vegetable production has increased families income especially the income of women who often grow, preserve and

sell vegetables (IITA, 1989). In other words, fadama farming has increased the annual profits of farmers as well as supported self employment and savings of food expenditures.

Vegetables are very important to our daily food consumption because with the available nutrients in the vegetables, toxins which hinder the normal body functions can be eliminated. The vitamins contained in vegetables help in healthy growth and development of the body; vitamins and minerals also support the immune system. The carbohydrate when broken down help supply energy to the body. The calcium in vegetables is essential for metabolic processes including normal nerve functions, muscle contraction, blood clotting and keeps the bones and teeth strong and healthy. (Raemaekers, 2001). All these nutrients are important especially for young children and the already old people in the communities. The nutritional content of the leaves of various species of Amaranthus varies but, in general, the leaves of plants of most species contain a high level of vitamin A, calcium and potassium. The leaves are used in soup making. The seed of Amaranthus spp. are used as food in some tropical areas and a protein content of up to 15% has been reported. The protein is qualitatively superior to that of true series because of its high lysine and methionine content.

Considering the importance of vegetables in human nutrition and income generation among rural framers, this study was conducted to examine the effect of the Fadama I project on Greenleaf production in Oredo LGA of Edo State and constraints faced by the farmers.

MATERIALS AND METHODS

Study Area

The study was carried out in Ogba village in Oredo Local Government Area of Edo State. The State is in the rainforest zone of Nigeria with an animal rainfall of 300mm-2,300mm, and land area of 19,035km^2, 60% of which is arable land (Edo ADP, 2003). Phase 1 of the fadama programme was completed in Ogba in Oredo Local Government Area (LGA) and Uhen in Ovia South East LGA (Edo South Agricultural Zone) Ilushi and Ugboha in Esan South East LGA (Edo Central Agricultural Zone); and Anegbette and Agbede in Etsako East LGA (Edo North Agricultural Zone. However, Ogba in Oredo LGA was purposively selected because vegetables were mainly grown in the community.

Data Collection

A random selection of 35 fadama and 35 non-fadama farmers was made for the study, hence a total of 70 respondents made up the sample size for the study. A well structured questionnaire validated by expert judgment was used for data collection. Responses on socio-economic characteristics, yield and constraints to *Amaranthus cruentus* farming were solicited. Respondents (fadama farmers) indicated their yield through memory recall which was validated by ADP facilitator's record, yield of non-fadama farmers were also solicited while constraint was measured in a 4-point rating scale of very serious coded 4, serious coded 3, not serious coded 2, and not a problem coded 1. A weighted mean of 2.50 and above was taken to indicate that a particular constraint was serious.

Data Analysis

Data collected on the socio-economic characteristics of the respondents, Greenleaf yields and constraints were subjected to descriptive statistics involving percentages, means and standard deviation.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents

Results in Table 1 revealed that majority (54.3%) of the fadama farmers were females while majority (67.9%) of non-fadama farmers were males. The result validates the finding of Adeolu and Taiwo (2004) that there are more women participants in fadama farming in South, Western Nigeria. Most (51.4%) of the fadama farmers were between 20 and 29 years, and 50.0% of non-fadama farmers were within the same age bracket, with a mean of 30 and 34 years for fadama and non-fadama farmers respectively. This means that the fadama farmers are relatively younger than the non-fadama farmers. The result agrees with the finding of Osun state Agricultural Development Programme (OSADP) (1997) that the average age of famers participating in fadama programme is less than forty (40) years. Taking the base line of literacy to be primary education, result revealed that both fadama and non-fadama famers in the study area are literate and most (45.7%) and (34.3%) respectively are educated up to Bachelors degree level. This high level of education may encourage high adoption of technology by the fadama farmers. However, that 2.7% of the fadama farmers had no formal education while some had primary school certificate and secondary school certificate (8.6%) shows that the selection of farmers for participation in the fadama programme was accomplished without discrimination based on education. Majority (57.1%) of the fadama farmers were single while 48.6% of the non-fadama farmers were married. This result negatives the finding of Oladoja *et al* (2006) that majority of fadama farmers in Lagos State were married. Most (54.3%) of fadama farmers cultivate between 2.1 to 4.0 acres of land while majority (71.4%) of the non- fadama farmers cultivate less than 2.0 acres of *Amaranthus Cruentus*. This implies that farm size has positive effect on fadama farming with the mean farm size of fadama farmers (2.3 acres) being higher than that of the non-fadama farmers (1.6hectres).

Table 1: Distribution of respondents by socio-economic characteristics

Variables	Fadama farmers			Non-fadama farmers		
	Frequency	Percentage	Mean	Frequency	Percentage	mean
Gender						
Male	16	45.7		23	65.7	
Female	19	54.3		12	34.3	
Total	35	100.0		35	100.0	
Age (years)						
< 20	3	6.6		0	0.0	
20-29	18	54.1		14	40.0	
30-39	10	28.6		12	34.3	
40-49	2	5.7	30	6	17.1	34
> 50	2	5.7		3	8.6	
Total	35	100.0		35	100.0	
Marital status						
Single	20	57.1		13	37.1	
Married	11	31.4		17	48.6	
Divorce	3	8.6		4	11.4	
Widower	1	2.9		1	2.9	
Total	35	100.0		35	100.0	
Farm size (hectres)						
< 2.0	14	40.0		25	71.4	
2.1-4.0	19	54.3	2.3	10	28.6	1.6
>4.0	2	5.7		0	0.0	
Total	35	100.0		35	100.0	
Educational Qualification						
No formal education	1	2.9		2	5.7	
Prim. School Cert.	2	5.7		3	8.6	
Sec. School Cert.	3	8.6		8	22.9	
OND/NCE	13	37.1		10	28.6	
BSc and higher	16	45.7		12	34.3	
Total	35	100.0		35	100.0	

Source: Field survey, 2010

Outputs of Fadama and Non-fadama Farmers

Table 2 revealed that majority (74.3%) of fadama famers have outputs of above 400kg, while majority (68.6%) of non-fadama farmers had outputs of between 201-400kg. This indicates a positive effect of fadama farming on outputs in *Amaranthus Cruentus* Production. This result agrees with the finding of Aladetoyinbo (2001) that fadama farming has advantage of increasing yield per hectare.

Table 2: Distribution of respondents by *Amanranthus Cruenthus* yield

Yield(kg/bag)	Fadama Farmers		Non-fadama farmers	
	Frequency	Percentage	Frequency	Percentage
< 200	0	0.0	11	31.4
201-400	9	25.7	24	68.6
>400	26	74.3	0	0.0
Total	35	100.0	35	100.0

Source: Field survey, 2010

The result (9.27) was significant at 5% level ($p < 0.05$) which implies that there is a significant difference in yield of fadama farmers and that of non-fadama farmers (Table 3). The result show that the mean output for fadama production was 448.57kg, while that of non-fadama production was 208.85, hence there is a mean difference of 239.72kg. This means that the fadama farming had an increased effect on yield.

Table 3: Difference in outputs of Fadama farmers and non-Fadama farmers output (t-test)

Farming status	Output		t- value	Probability level
	Mean	difference		
Fadama farmers	448.57	239.72	9.26	0.05
Non-fadama farmers	208.85			

Source: Computed from field survey, 2010.

Production Constraints

Table 4 revealed that water-logging of fadama lands (mean = 3.17) inadequate technical information (mean = 2.86), lack of pumps (mean =2.71), inadequate supply of fertilizer (mean = 2.74), excessive weeds (mean = 2.69), inadequate irrigation equipment (mean = 2.51) were the serious constraints faced by fadama farmers. However, the only constraint faced by non-fadama farmers was inadequate technical information (mean = 3.00). The constraints is are a representation of the level of management of fadama programme in the area. For instance, water-logging on fadama is caused by lack of supply of pumps inadequate irrigation equipment to check excessive water, which leads to excessive weed infestation hence the need for herbicides which could in turn raise the cost of production. This result confirms the finding of Oladoja *et al*. (2005) that vegetable farmers face problem of insufficient supply of fertilizers, also Oyekunle *et al* (2007) affirmed that lack of adequate information on production techniques is a technical constraint to fadama farmers in relation to marketing, Okunla (2005) observed that high prices of crops was not a problem because the issue of gloat is reduced to its barest minimum in dry season

Table 3 also reveals that access to improved seed varieties (mean = 1.57), storage facility (mean = 1.29) and implements for land preparation (mean = 1.26) were not serious constraints. This shows fadama farmers are having access to agricultural technology.

Table 4: Mean Distribution of Constraints to *Amaranthus Cruentus* Production by Respondents

Production Constraint	Fadama farmers		Non-Fadama farmers		Total	
	Mean	SD	Mean	SD	Mean	SD
Water logging on fadama	3.17*	0.9	0	0	0	0
Inadequate technical information	2.86*	1.1	3.00*	0.9	2.92*	1.0
Lack of supply of pumps	2.71*	0.8	0	0	0	0
Excessive weeding	2.69*	0.6	2.46	10.0	2.59*	0.8
Low supply of fertilizers	2.74*	0.7	2.18	9.8	2.49	0.8
Lack of irrigation equipment	2.51*	0.8	2.29	0.9	2.41	0.9
Insufficient transport network	2.46	0.9	2.25	0.8	2.37	0.8
Marketing of vegetable	2.46	0.8	2.07	0.7	2.29	0.7
High requirements for herbicides	2.26	0.7	2.32	0.6	2.29	0.7
Inadequate capital	2.20	0.8	2.00	0.9	2.11	0.8
Inadequate access to improved seed varieties	2.00	0.8	2.18	10.0	1.67	0.9
Lack of storage facilities	1.57	0.9	1.79	1.0	1.67	0.9
Lack of implements like tractors	1.29	0.5	1.89	1.0	1.56	0.8

Source: Field survey, 2010

CONCLUSION

It was found that fadama farming have positive effect on the yield of *Amaranthus cruentus*. However, fadama farmers are faced with constraints, the most serious of which was water logging of fadama land. Proper and timely information, adequate irrigation equipment, and the needed inputs should be provided to farmers so they can maximize the benefits of fadama farming. The techniques employed in fadama farming should be employed continuously and supported by government even after the expiration of the fadama project.

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