

# DRY SEASON VEGETABLE FARMING IN THE FLOODPLAINS OF RIVER KATSINA-ALA IN KATSINA-ALA TOWN OF BENUE STATE, NIGERIA

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## ABSTRACT

*The study assessed dry season vegetable farming in the floodplains of River Katsina-Ala in Benue State, Nigeria. The study sought to know the socio-demographic characteristics of dry season vegetable farmers, method of production and variety of vegetables grown as well as the average farm sizes and annual income derived. Data were collected from 160 dry season vegetables farmers using structured questionnaire, interviews and personal observation. Descriptive statistics was used to analyze the data. The result of the study shows that migrants of Hausa origin dominated the farm against the indigenous settlers of Tiv (13.1%) and Etulo (26.9%). Farm sizes were generally small less than a hectare accounted for 61.9%. Dominant variety of vegetables grown was spinach, tomatoes and okra. The study identified lack of capital, farm inputs, storage facilities and attacks by pests and diseases as the major constraints affecting the farming practice in the study area and recommended among others that agricultural extension services should be offered to the farmers on modern way and innovations of vegetable farming; and indigenous farmers should be enlighten to practice dry season vegetable farming to boost availability of the product during this season.*

**Key words:** *Dry season, vegetable, farming, floodplain, temperature*

## INTRODUCTION

Vegetable production ranges from small farms producing few vegetables for family use or marketing to the highly organized and mechanized vegetable farms common in the advanced countries of Europe and North America (Whyne-Harmond, 1979, Tindall, 1965). For the purpose of this research vegetable refers to the fresh edible portion of herbaceous plant consumed either raw or in cooked form. The edible portion may be a root, tuber, the stem, the bulb or bud, leaf and leaf stalk (Hornby, 2006, Encyclopedia Britannica, 1976). Thus, the cultivation of vegetable during the dry season with the aid of irrigation is termed dry season vegetable farming. Dry season vegetable farming in Benue State can be described as a small-scale vegetable irrigation farming system usually practice along river banks (floodplains or Fadama land) by farmer who take responsibility for the investment and management of their farms. In Nigeria dry season vegetable farming had it origin in the northern region. Vegetable farming is more common, popular and lucrative in Jos and other towns on the Jos Plateau. It is a major economic activity during the dry season involving many youths (Iorkua, Ikyernum and Kereku, 2004, Adepoju and Dung, 1999). The high potentialities of the extensive fadama land found along the valleys of the large rivers in the country were increasingly recognized during the 1960s and successful feasibility

survey then paved the way for substantial expansion of dry season farming in Nigeria (Agboola, 1979). Udo (1981) asserts that major areas of irrigation farming in Nigeria include Lake Chad, Yobe River, Kanji Dam, Sokoto River Basin. Adepetu (1989) also reports that government effort to encourage dry season farming in the country led to the construction of large Dams such as Kiri Dam (former Gongola State), Tiga Dam (Kano State), Bakolori Dam (Sokoto State) and Dadinkowa Dam (Gombe State). However, the large scale irrigation projects in Nigeria have failed to yield the desired outcome.

Following widespread failure of large scale irrigation projects throughout the sub Sahara Africa (for example the Green Revolution initiative of 1970s) to ensure food security; many policy makers, stakeholders, governments and donor agencies have shifted attention to small scale farmer based floodplain agriculture (World Bank 2001). It is an alternative to large scale irrigation farming. According to Nyagba (1995), dry season farming is a recent practice in Benue State introduced to the State by the Hausa migrants along the banks of River Benue from where it is fast spreading to other areas within the State. Mtonga (2000) and Omale (2003) in their separate studies maintained that dry season farming was not prominent in the State but gradually with modification and changes in human activities, farmers in Benue State now carry out dry season farming although at a small scale. The importance of dry season vegetable farming cannot be over emphasized.

It provides vitamins that enhance the health status of the people and animals (Arnold, 1980; Kochler, 1986). It also has the advantages of ensuring economic returns as it often improve household economic security and investment of the farmers and retailers involved (Yahaya, 2002). Considering the importance of dry season vegetable farming and the significant climatic and anthropogenic changes that have continued to exacerbate the food insecurity in Nigeria rendering poor household more vulnerable; the need to assess the farming practice in the floodplains of River Katsina-Ala with the view to improving it becomes very imperative. This study therefore, sought to know the socio-demographic characteristics of dry season vegetable farmer, method of production, varieties of vegetable grown, farm sizes and average income derived as well as the problems or factors affecting the farming practice in the study area.

## **MATERIALS AND METHOD**

Katsina-Ala township lies between latitude 7° 03' 00" N and longitude 9° 25' 00" E. Katsina-Ala is one of the Local Government Areas in Benue State, Nigeria. It falls within the Koppen's AW (wet and dry) climatic system. The wet and dry seasons begin following the northward passage and southward retreat of the inter-tropical convergence zone (ITCZ) over the area in late March and October respectively. Temperatures are mostly high throughout the year with average range between 23°C - 28°C with the peak of 38°C. The coolest part of the season is during harmattan period between December and January. The dominant soil of the study area is hydromorphic soil (Alluvial or fadama soils). The major drainage channel of the study area is the River Katsina-Ala (Kenting Earth Science Limited, 1981). The study's population comprises all dry season vegetable farmers in the floodplains of River Katsina-Ala within Katsina-Ala township. A sample of 160 farmers was randomly selected. Data on dry season vegetable farming in the study area were

collected using questionnaire, interview and personal field observation. The data were analyzed using descriptive statistics, such as percentage and frequency count.

## **RESULTS AND DISCUSSION**

The demographic characteristics of dry season vegetable farmers in the study area shows that the farming is mostly practice by youths in their active ages who were determined to labour their way to success. While few others were those in their middle ages. It therefore means that majority of the farmers are with in the productive age and has the physical strength to cope with the rigor of dry seasoning farming. The farmers were mostly males and were married. Their educational attainment shows that majority of the farmers had no formal education. This have some implications on the methods, variety of vegetable grown and other innovations in the farming system hence modern vegetable farming required educational skills and knowledge.

It therefore means that, application of modern farming system innovations in the study area by the farmers will be difficult since majority of them were illiterates. The study also reveals that Hausa migrants dominated the farm followed by Etulo, TIV and Igbo. This study tend to agree with Nyagba (1995) and Iorkua, Ikyernum and Kerenku (2004) in their separate studies on dry season farming along the Banks of River Benue who discovered that migrants have dominated the farming practice in Benue State. They normally come and hire the land through leasehold from the indigenes during the dry season to cultivate vegetables. The study discovered through the interview segment that the farming culture of the indigenous farmers (Tiv and Etulo) was not inclined to dry season vegetable farming since culture is one of the important factors that determine the pattern of agriculture. The people's culture determines the method of production and types of vegetables grown in the study area. The method of production gives an insight into the kind and scale of farming as well as the technology in use which distinguishes between mechanized and peasant farming. On the other hand the variety of vegetables grown also gives an insight into irrigation requirements which is determine by both soil and plant factors.

Table 2 shows that majority of the dry season vegetable farmers commences their farming between November/December. The dominant variety of vegetables grown were spinach, Tomatoes, Okra, Pepper, Garden egg, and Pumpklin "Ogwu". Significant proportion of the farmers irrigated their vegetables manually while only used pumping machines for irrigation. It therefore means that vegetable farming in the study area is still at peasant stage of production. The study discovered that farm sizes were generally small; less than a hectare which many farmers attributed the small sizes of their vegetable farms to lack of capital, farm inputs and land hence majority of the farmers were migrants who had to depend largely on the indigenous land owners that determine whether to lease it out or not. The study also reveals that vegetable farming is very and lucrative and profitable. It was further revealed from the table that while some farmers made annual income below N25,000, others made annual income above the stated sum. This farming system has indeed boost the standard of living of these farmers in many ways. The study identified some major factors that were affecting the farming practice in the study area to include

lack of modern farm inputs such as fertilizer, pumping machines, tractors and herbicides; lack of storage facilities such as Refrigerators/Cooled rooms; lack of capital; inadequate land; pests/Diseases ; Thieves; and lack of labourers.

## CONCLUSION AND RECOMMENDATIONS

The utilization of floodplains for dry season agriculture is critical to food security and economic development of the nation. It has been discovered on the basis of the field findings that floodplains of River Katsina-Ala has great potentials for dry season vegetable farming. However, the problems associated with the practice in the study area had affected the development of farming system. It therefore means that unless concrete steps are taken to improve the practice by overcoming all the problems identified in the study area, the farmers will still be hindered despite their efforts in making the produce available in large quantity. Therefore, government at all level should encourage small scale farmers who engage in dry season farming in order to guarantee the most needed food security in the country. Based on the findings of the study, the following recommendations were made:

1. Indigenous community leaders and government of Benue State should encourage indigenous farmers to practice dry season vegetable farming by way of providing the necessary facilities as well as enabling environment for the business to thrive.
2. Agricultural extension services should be offered to the farmers on modern methods and innovations in vegetable farming since majority of the present farmers in the study area were illiterates. They should be taught on how to improve on vegetable farming techniques as well as learn to keep farm record.
3. Dry season vegetable farmers should form an association to enable them access government agricultural and banks loans both in cash and farm inputs at low interest rates. Farmers should also learn to use local technologies such as application of organic manure to increase vegetable yield.

**Table 1:** Socio-demographic characteristics of dry season vegetable farmers in the area.

Variables	Respondents	Percentage	
<b>Age:</b>	15-30	92	60.5%
	Above 30	60	39.5%
	<b>Total</b>	<b>152</b>	<b>100%</b>
<b>Sex:</b>	Male	90	63.8%
	Female	51	36.3%
	<b>Total</b>	<b>141</b>	<b>100%</b>
<b>Marital Status:</b>	Single	31	20%
	Married	118	76.1%
	Widows	6	3.9%
	<b>Total</b>	<b>155</b>	<b>100%</b>
<b>Literacy Levels:</b>	No formal Education	90	60.8%
	Primary	28	18.9%
	Secondary	23	15.5%
	Tertiary	7	4.7%
	<b>Total</b>	<b>148</b>	<b>100%</b>
<b>Ethnicity:</b>	Tiv	21	13.1%
	Etulo	43	26.9%
	Hausa	89	55.7%
	Igbo	7	4.3%
	<b>Total</b>	<b>160</b>	<b>100%</b>

*Source:* Fieldwork, 2006

**Table 2:** Method of production and types of vegetables grown in the study area.

<b>Variables</b>	<b>Respondents</b>	<b>Percentage</b>
<b>Period of Cultivation:</b>		
November	23	16.1%
December	86	60.1%
January	25	17.5%
February	9	6.3%
<b>Total</b>	<b>143</b>	<b>100%</b>
<b>Water Application Method:</b>		
Pumping Machine	42	29.8%
Manually	99	70.2%
<b>Total</b>	<b>143</b>	<b>100%</b>
<b>Types of Vegetable grown:</b>		
Spinach	139	86.8%
Tomato	127	79.3%
Okra	126	78.7%
Pepper	91	56.8%
Garden Egg	74	46.2%
Pumpkin "Ogwu"	58	36.2%

*Source:* Fieldwork, 2006

**Table 3:** Farm sizes and annual average income derived

<b>Variables</b>	<b>Respondents</b>	<b>Percentage</b>
<b>Farm Sizes:</b>		
< 1 hectare	99	71.7%
> 1 hectare & above	39	28.5%
<b>Total</b>	<b>138</b>	<b>100%</b>
<b>Average Income N</b>		
< 5000	20	63.8%
5000 - 10,000	40	36.3%
10,001 - 15,000	24	15%
15,001 - 20,000	22	13.8%
20,001 - 25,000	18	11.2%
25,001 - 30,000	12	7.6%
30,001 - 35,000	7	4.3%
Above 35,000	17	10.6%
<b>Total</b>	<b>160</b>	<b>100%</b>

*Source:* Fieldwork, 2006

**Table 4:** Factors affecting dry season vegetable farming in the study area

<b>Factors</b>	<b>Respondents</b>	<b>Percentage</b>
Lack of capital	152	95%
Lack of farm inputs	158	98.7%
Lack of storage facilities	99	61.8%
Inadequate land	89	55.7%
Thieves	93	58.1%
Pests/Diseases	123	76.8%
Lack of Laborers	72	45%

*Source:* Fieldwork, 2006

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