



ECONOMIC ANALYSIS OF DRY SEASON VEGETABLE FARMING AMONG WOMEN IN MAKURDI LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

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ABSTRACT

The study assessed dry season vegetable farming among women in Makurdi Local Government Area of Benue State. A total sample size of 60 dry season vegetable farmers was used for the study. Information for the study was collected using a well-structured questionnaire administered within four weeks to the respondents. Simple descriptive statistics (such as frequency counts, means and percentages), multiple regression and gross margin analysis were used to analyze the data. The results revealed that majority (70.0 %) of the women engaged in dry season vegetable farming were within the age bracket of 31-40 and 71.1% were literate. The results from the findings revealed that larger proportion (43.3 %) of the women engaged in dry season vegetable farming had household size within the ranges of 6-10 persons with a mean household size of 6.1 persons. It was also indicated from the findings that most (61.7%) of the women engaged in dry season vegetable farming had no access to extension contact. It was also revealed from the findings that majority (73.3%) of the women engaged in dry season vegetable farming employed both hired and family labour to carry out their vegetable farming. Results from the findings revealed that none of the women engaged in dry season vegetable farming had farm size up to a hectare. The findings also indicated that majority (99.3 %) of the women engaged in dry season vegetable farming was married. Results from the findings also show that larger proportion (48.3 %) of the women engaged in dry season vegetable farming had been farming for 6-10 years. The results of the multiple regression analysis revealed that the value of the multiple regressions co-efficient (R^2) was found to be 0.727, implying that the regression model accounted for about 73% of none zero variations in the study model. However, the age, household size, farming experience, educational status, farm size was positively correlated to the income of the respondents. The total revenue (TR), Gross Margin (GM), Total variable cost (TVC), and Return on Naira Invested (ROI) by women engaged in dry season vegetable farming were: N60, 391.67, N36, 858.33, N23, 533.34 and N0.57 respectively. The constraints observed by dry season vegetable farmers were as follow; high cost of irrigation equipment, pest and disease infestation, inadequate inputs, inadequate credit facilities and high cost of transportation. The findings of the study revealed that dry season vegetable farming is a profitable business in the study area. Nevertheless, the profit margin can be increased if the problems affecting the women engaged in the venture are looked into. These problems include high cost of irrigation equipment, inadequate credit facilities, high cost of transportation, inadequate input and incidence of pest and disease. The study concluded by encouraging women to join or form cooperative society, subsidizing the price of farm inputs, construction of bore-holes and developing river basin irrigation schemes, amongst others.

Keywords: *Vegetable, Dry Season, Micronutrients and Irrigation Farming*

INTRODUCTION

Agriculture is a mainstay of the small scale farmers in Nigeria. Giroh *et al.*, (2010) posits that Agricultural production in Nigeria is dominated by small scale farmers and is known to produce more than 90% of food consumed in the country. One of the major items produced is vegetable. The importance of vegetables as major and efficient sources of micronutrients in African diet cannot be over stressed.

The problem of hunger and of course malnutrition cannot be addressed without paying proper attention to agriculture. In the developing countries, most farmers practice rain-fed agriculture which results in low productivity, low income, perpetual poverty and malnutrition. To improve agricultural productivity in these countries, irrigation farming along with the use of improved seeds, fertilizers and other relevant inputs become necessary for food and income increment. About 90% of the country's food is produced by small-scale farmers cultivating tiny plots of land who depend on rainfall rather than irrigation systems (Annon, 2015).

One of the goals of irrigation farming is the provision of right amount of water at the right time for plant growth and development. Consequently, it ensures sustainable agriculture with its economic benefits. Globally, massive investments have been made in the development of irrigation scheme. In Nigeria, according to NINCID (2009), recent survey suggest that 39% of the land mass is potentially suitable for agriculture and out of this between 4.0 and 4.5 million ha (approximately 4.5 to 5.0% of the land) are judged suitable for irrigated agriculture but only 1.1 million ha can be supported fully by the water available, the remaining 3.4 million ha being Fadama.

Vegetable is one of the most important enterprises of rural area production systems in Nigeria because vegetables are important components of human diets and they can easily be cultivated on small areas. Whereas the Food and Agricultural organization of United Nations (FAO) and the world health organization (WHO) recommended a daily vegetable intake of 200g per person, the Nigerian national average is below this value (Kintomo *et al.*, 2014). This inadequate intake of fresh vegetables may further be worsen during the dry season when moisture scarcity limits the area under cultivation and quantity of vegetables that can be grown and supplied to the urban areas (Ojo *et al.*, 2010).

Vegetables are known to enrich some diets with nutrients including lipids, carbohydrates and vitamins (Komolafe *et al.*, 2010). Vegetable crops are important for almost every household. According to Dittoh (2012), vegetables add flavor to the food

and also provide considerable protein, vitamins and minerals. Most vegetables are low in starch content and are a good source of phytonutrients. They serve as roughage, which promotes digestion, and prevent constipation. Vegetable crops not only improve the nutritional quality of diets, the production of vegetables under irrigation and their marketing provides many people with employment in the dry season. Vegetables constitute a major component of the country's food sector. Though not a staple in most areas of Nigeria, the commodity occupies a significant position in the total per capita caloric intake of most Nigerians. It is estimated that about 70% of the vegetables produced in Nigeria is marketed and consumed fresh (Danso *et al.*, 2003).

Vegetables play an important role in income generation and subsistence. Recent surveys carried out by the Natural Resources Institute in Nigeria provide evidence that vegetables offer a significant opportunity for the poorest people to earn a living, as producers and /or traders, without requiring large capital investments. They are important items for poor households because their prices are relatively affordable when compared to other food items (Schippers, 2014).

Small-scale irrigation technology is irrigation on small plots under the control of farmers, using technology they can effectively operate and maintain (Ojo *et al.*, 2010). In small-scale irrigation the Fadama users have the controlling influence, using a level of technology which they can operate and maintain effectively. Small-scale irrigation is, farmer-managed; farmers must be involved in the design, process and in particular, with decisions about boundaries, the layout of the canals, and the position of outlets and bridges. Irrigation plays a key role in the performance of agriculture, which increases income growth and livelihood of the fadama users.

Vegetables are nourishing foods because they contain a little of all the substances needs of man like protein, mineral salts, sugars, vitamins, aromatics, colouring agencies, iron and essential oils that increase man's resistance to disease. In this class of food, man finds the wide range of nutritive elements he needs. According to Weinberger and Lumpkin (2007), Aladetoyinbo (2001), Roger and Ingawa (2003) global production of fruits and vegetables tripled from 396 million metric tones (MT) in 1961 to 1.34 billion MT in 2003.

This underscores the relevance attached to vegetables and fruits. Fruits and vegetables represent essential part of these agricultural products. Their production remains entrenched in Nigerian agriculture, and forms an important condiment in the national diet consumed by all Nigerians in almost

every meal. In Nigeria, there are two distinct seasons, the rainy season and the dry season. The rainy season is the normal cropping season and this starts from April and ends in October, while the dry season starts from November and ends in March. During the rainy season, the production of vegetable is high resulting in the saturation of the market, but during the dry season there is usually the scarcity of this important farm product thereby leading to a high price due to short supply (Ibekwe and Adesope, 2010).

This seasonality has resulted in food insecurity which is a challenge to sustainable food production. It has also been found that most farmers do not want to go into large scale production because they are apprehensive of high risk. This has made the farmers to grow vegetables as intercrop of low significance as a way of avoiding risk. It is surprising that after two decades of horticultural research and extension activities in Nigeria, farmers are not yet sure and confident that the extra cost concomitant with the adoption of new technologies would bring extra benefits (Okunola, 2009; Ibekwe and Adesope, 2010). This has implication for accurate assessment of the potentials of dry season vegetable production as a source of income for the farmers. This study therefore, was designed to analyze profit maximization among dry season vegetable farmers in the study area.

The benefit of irrigation (which is the artificial application of water for agricultural crop growth) in Nigeria is not limited to food supply alone but it also serves as a source of employment during the slack period of rain-fed agriculture. Women farmers also contribute sonically to the food security in Nigeria and constitute up to 60% of the total food produced in the country. There are two distinct seasons in Nigeria. These are the rainy (April to October) and the dry (November to March) season. Farmers are usually less busy on the farm during the dry season; therefore, irrigation farming serves as an alternative employment and additional source of income during the period. Irrigation farming practice has increased tremendously because of increasing demand for vegetable and other food items during off farming season.

Nigeria has a great potential for the production of high value vegetables during the dry season. This is because the country is endowed in underground water reserves. Given the need to utilize this potential resource and ensure continuous cultivation to generate the dry season farm income, government initiated the first National Fadama development Project in the early 1990s. The project was to develop small-scale, simple, low-cost, farmer managed irrigation scheme under the World Bank financing. According to Adesoji *et al.*, (2006), the first Fadama Development Project

(Fadama I), which was implemented between 1993 and 1999, was executed in seven core states: Bauchi, Gombe, Jigawa, Kano, Kebbi, Sokoto and Zamfara. Following the widespread adoption of the Fadama technology, farmers realized income increases of up to 65% for vegetables. Impressed by the achievement of Fadama I, government approached the African Development Fund (ADF) and the World Bank for financial support towards the second Fadama Development Project (Fadama II). The ADF approved a credit facility of UA 22 million (US \$30.8 million) in December 2003 and the Fadama II commenced in June 2004. The project duration is six year.

The aim of the study was to describe the socioeconomic characteristics of women engaged in dry season vegetable farming in the study area, to determine the factors affecting dry season vegetable farming among women in the study area, to determine profitability of dry season vegetable farming in the study area and to identify problems militating against women engaged in dry season farmers in the study area.

Eradication of extreme poverty and hunger and creating gender equality as the prime goals of the federal government of Nigeria which is embedded in the millennium development goals of the world summit of the United Nations. It is therefore necessary that the teeming population would need to be fed through the numerous investments in agriculture made by the government.

Vegetables are nourishing foods because they contain a little of all the substances needs of man like protein, mineral salts, sugars, vitamins, aromatics, colouring agencies, iron and essential oils that increase man's resistance to disease. In this class of food, man finds the wide range of nutritive elements he needs. This accounts for large cultivation of vegetables in which women farmers are not exceptional. As a result it is necessary to finance vegetable cultivation because of its nutritive value. Therefore, there is an urgent need to assess the impact of dry season vegetable farming in relation to the Millennium Development Goal of eradication of hunger and poverty from Nigeria perspective among women. Such study would provide baseline information for governments, development agencies and potential farmers who are interested in irrigation farming.

MATERIALS AND METHODS

This study was conducted in Makurdi, Benue State, Nigeria which is also the headquarters of the State. Makurdi had an estimated population of 600,797. People (NPC, 2006) with a land area of 804 square kilometers. The city is located in central Nigeria

and lies on the south bank of the Benue River. The latitude and longitude of Makurdi is 7°43' North and 8°35' East.

Makurdi is made up of eleven (11) districts. It is characterized with two seasons, the rainy and dry season. The rainy season starts from late April – October with annual rainfall of about 1500mm with highest rainfall in the months of August to September and the dry season commences from November to Late March.

Makurdi is situated at the narrow end of the River Benue where the rail bridge is constructed, Makurdi lies on both banks of the River Benue. It is bounded on the West and North by Lafia, Keana and Doma Local Government of Nasarawa State. On the east by Guma local government and on the South by both Gwer and Gwer-West Local Governments.

The major ethnic groups are the Tiv, Idoma and Iggede. Makurdi has people of diverse cultural background, prominent among the tribes or ethnic groups in Makurdi are Hausa, Igbo, Yoruba, Jukun, Idoma, Nupe, Kabawa, Etulo, Alago etc and the indigenous and dominant Tiv tribe. Though the Tiv language and culture which is same consideration degree of cultural infusion for instance it is not surprising to see a Tiv man dressed in Hausa or Yoruba dress as well as speak Hausa and Yoruba languages and vice versa.

Makurdi is dominated by farmers. Crops such as yam; soya-beans, corn, groundnut etc. are produced in the local government in a large quantity. Also commerce constitutes the main stay or revenue generation to the State (NPC, 2006).

The sample of the population comprised of dry season vegetable women farmers in the Local Government Area. This was selected through a multi-stage sampling procedure. The first stage was the random selection of three (3) districts in Makurdi Local Government Area. The second stage involved the purposive selection of four (4) villages (Adai, Gever, Ala, Agbeshi, Akudi, Akoodo, Kume, Ahah, Ucha, Abaagena, Guma, and Kwenyi) from each of the selected districts. This is because vegetable production is largely produced in these selected areas. Finally, five (5) vegetable women farmers were randomly selected from each of the five (5) villages and this gives rise to sixty (60) respondents for the study. Data was collected with the aid of structured questionnaire designed to elicit information on the objectives of the study.

The data obtained was analyzed using descriptive statistics such as frequency tables and percentages in order to give brief background information about the socio-economic characteristics of the population under study. This was used to satisfy objectives i and

iv. The budgetary analysis (cost and returns) was used to satisfy objective iii, while the Ordinary Least Square Regression was used to determine women farmers engaged in vegetable production in the study area.

RESULTS AND DISCUSSION

The results from Table 1 show that majority (70.0 %) of the women engaged in dry season vegetable farming were within the age bracket of 31-40, 16.7% were within the age bracket of 41-50 years, while 13.3% were within the age bracket of 20-30 years. The mean age was 35.9 years, meaning they were in their middle age. This supports the findings of Bawa *et al.*, (2010) who reported that women involved in dry season vegetable farming in Borno State, North-East Nigeria, were within the economically productive age range of 18-40 years. Ogumbameru (2001) asserted that young and middle aged people are the most active in agricultural production activities for increased productivity.

Table 1 also revealed that majority (66.7%) of the women engaged in dry season vegetable farming had secondary education, 28.3 % had primary education and only 5.0 % had tertiary education. It can be deduced from the finding that 71.1% of the women vegetable farmers are literate. Education has been discovered to be highly related to effectiveness of work and economic function (Meskel, 2006).

The results from table revealed that larger proportion (43.3 %) of the women engaged in dry season vegetable farming had household size within the ranges of 6-10 persons. The mean household size was 6.1 persons. Large household size could provide ample labour supply for farming but could also result in more mouths to feed which could put more pressure on household income and resources.

Table 1 indicated that majority (61.7%) of the women engaged in dry season vegetable farming had no access to extension contact, 23.3% had contact with extension services twice while only 15.0% had contact just once. This is an indication of poor extension service delivery, and may be attributed to the fact that women in the study area may be disregarded in any agricultural extension services affecting them due to the socio-cultural factors in Nigeria. Agricultural extension service constitutes a driving force for any agricultural development. The relationship between agricultural extension agent and the farmer is an important factor towards agricultural production expansion (Amaza, 2005).

It was also revealed from Table 1 that majority (73.3%) of the women engaged in dry season vegetable farming employed both hired and family labour to carry out their vegetable farming with hired

labour (26.7%) being the larger proportion when compared to family labour of just 3.3%. This result shows that women engaged in dry season vegetable farming in Makurdi Local Government Area depend mostly on both hired and family labour in carrying out farm operations.

Results from table 1 revealed that none of the women engaged in dry season vegetable farming had farm size up to a hectare. The mean farm size was 0.24. This is an indication that most of the women engaged in dry season vegetable farming were small holders and this may be due to women not been given access to productive resources in the study area. This small farm size can hinder large production output among the women engaged in dry season vegetable farming.

Table 1 indicated that majority (99.3 %) of the women engaged in dry season vegetable farming were married while only 6.7 % were still single. This could mean more mouth to be fed because married households have the tendencies to have more children to carter for. Table 1 shows that larger proportion (48.3 %) of the women engaged in dry season vegetable farming had been farming for 6-10 years, 31.7% had farming experience of 11-15 years, while only 10% had farming experience of over 20 years. The mean farming experience was 9.6 years.

Table 1: Socio-economic Characteristics of Respondents

Characteristics	Frequency	Percentage	Mean value
Gender			
Female	60	100.0	
Age			
20-30	8	13.3	
31-40	42	70.0	35.9
41-50	10	16.7	
Total	60	100.0	
Marital status			
Single	4	6.7	
Married	56	93.3	
Total	60	100.0	
Farming experience			
6-10	29	48.3	
11-15	19	31.7	
16-20	6	10.0	9.6
>20	6	10.0	
Total	60	100.0	
Characteristics	Frequency	Percentage	Mean value
Household size			
1-5	24	40.0	
6-10	26	43.3	
11-15	10	16.7	6.1

Total	60	100.0	
Type of farming			
dry season farming	41	68.3	
Both	19	31.7	
Total	60	100.0	
Educational status			
Primary	17	28.3	
Secondary	40	66.7	
Tertiary	3	5.0	
Total	60	100.0	
Frequency of extension contact			
None	37	61.7	
Once	9	15.0	
Twice	14	23.3	
Total	60	100.0	
Farm size			
less than one	60	100.0	0.25
Type of labour used			
family labour	2	3.3	
hired labour	14	23.3	
Both	44	73.3	
Total	60	100.0	

Source: Field Survey, 2017

Factors Affecting Dry Season Vegetable Farming among Women in the Study Area

The results of the multiple regression analysis as presented in Table 2 revealed that the value of the multiple regressions co-efficient (R²) was found to be 0.727. This implies that the regression model accounted for about 73% of none zero variations in the study model. This shows that independent variables determine about 73% of variations in the income of women vegetable farmers. Thus, the regression has a good fit to explain the relationship of income and socio-economic factors of the women involved in dry season vegetable farming. The result from Table 2 showed that the age, household size and marital status of the women engaged in dry season vegetable farming were significant at one percent level of significance, while only their farming experience was significant at five percent level of significance. However, their educational status, farm size and number of extension contact were not significant.

The regression analysis also showed that the age of women involved in dry season vegetable farming were negatively correlated with their income. This means that an increase in the age of the women engaged in dry season vegetable farming will lead to reduced income. This is not surprising since agricultural production output per person decreases with age because the younger women tend to have more energy and vigor to work in the farm.

The level of education is positively correlated. This means that an increase in the level of education will lead to an increase in income from women engaged in dry season vegetable farming. This is in line with apriori expectation. It is well known that formal education aids managerial ability of farmers. Household size was found to be positively correlated with women involved in dry season vegetable farmers' income and significant at one percent level of significance. This suggests that an increase in the level of use of this variable will lead to increase in income from women engaged in dry season vegetable farming. This has implication for provision of household labour which is an important variable in small scale production. Source of credit was also found to be positively correlated and significant at five percent level of significant. This means that as the sources of credit increases the respondents' income level.

Farming experience was also found to be positively correlated and significant at five percent level of significance. This means that an increase in the years of experience of the women involved in dry season vegetable farming will lead to an increase in income from vegetable production. This is in line with apriori expectation of the study. Farm size was found to be positively correlated. This implies that an increase in the magnitude of this important variable will definitely lead to an increase in income from vegetable production. This has implication for economy of scale. It is also important to note that the study area is land deficient as the average farm size was found to be 0.093 ha. This has implications for intensive agriculture and off farm incomes.

Table 2: Factors Affecting Dry Season Vegetable Farming among Women in the Study Area

Variables	Coefficients	Standard error	T-value
(Constant)	5.870	1.901	3.088***
Source of credit	.180	.504	.358**
Extension contact	.388	.383	1.013***
Farm size	1.107	1.348	.821***
Household size	.016	.011	1.542NS
Farming experience	.155	.071	2.201**
Educational status	.051	.081	.632NS
Age	.244	.058	4.198***

Source: Field Survey, 2017

R² = 0.727, F-Value = 19.79

***significance at 1% level of significance, ** significance at 5% level of significance, and NS= Not significant

Profitability of Dry Season Vegetable Farming in the Study Area

The results of the gross margin analysis as presented in Table 3 revealed that, the average variable cost per hectare of vegetable Production was N23,

533.34 which represents 62.8% of the total cost of production. The total cost of production of vegetable per hectare was N37, 466.67. The total revenue (TR), Gross Margin (GM), Total variable cost (TVC), and Return on Naira Invested (ROI) by women engaged in dry season vegetable farming were: N60, 391.67, N36, 858.33, N23, 533.34 and N0.57 respectively. The value of the gross margin obtained from the study indicated that vegetable production is an essential income earner for rural women in the study area. Also it was also observed that for every naira invested, a profit of N0.57 was realized. Information from the profitability analysis shows that dry season vegetable farming is a viable business in the study area with a profit margin of N22, 925.25 per hectare. Though it could be more profitable if managed properly with adequate records. These results implied that dry season Vegetable Production is a profitable business. Table 3: Profitability Analysis for Vegetable Production

Cost and Return Items	Mean Value (N/kg)	Percentages of Variable Cost
A) Variable Cost (Naira)		
i. Fertilizer	8,708.33	37.00
B) Labour		
i. Planting	2,900.00	12.32
ii. Weeding	4,191.67	17.81
Agrochemicals	4,566.67	19.41
Transport	3,166.67	13.46
Total Variable Cost (TVC)	23,533.34	
C) Fixed Cost (FC) (Naira)		
i Land	3,453.20	
ii. Irrigation equipment	10,480.13	
Total Fixed Cost (TFC) (Naira)	13,933.33	
D) Total Cost (TC) (Naira) (TFC+TVC)	37,466.67	
E) Total Revenue (TR) (Naira)	60,391.67	
Net Return (NR) = TR-TC	22,925.25	
Gross Margin (GM) = TR-TVC	36,858.33	
Return Per Naira Invested	0.57	

Source: Field Survey, 2017.

Constraints Militating against Women Engaged in Dry Season Vegetable Farming

Table 4 shows the results of the constraints faced by women engaged in dry season vegetable farming in the study area. The constraints observed were as follow; high cost of irrigation equipment, pest and disease infestation, inadequate inputs, inadequate credit facilities and high cost of transportation. The study showed that 91.6% of the farmers had problem of high cost irrigation equipments. About 80.0% of the farmers were confronted with the problem of pest and disease attack. Inadequate farm inputs constituted 28.3%. Also 5.0% were faced with inadequate credit facilities and high cost of transport. This implied that, women vegetable farmers in the study area had

numerous problems, but provision of funds could solve more than half of the aforementioned problems. This result is in agreement with the findings of Adelani *et al.*, (2007).

Table 4: Constraints Faced by Women engaged in Dry Season Vegetable Farming

Constraints	Frequency	Percentage	Rank
High cost of irrigation equipments	55	91.67	1st
Pest and disease problem	48	80.00	2nd
Inadequate inputs	17	28.33	3rd
Inadequate credit	3	5.00	4th
Transportation	3	5.00	5th

Source: Field Survey, 2017

*Multiple responses were allowed

SUMMARY AND CONCLUSION

The results of the findings revealed that majority (70.0 %) of the respondents were within the age bracket of 31-40. Also results from the finding it was indicated that 71.1% of the women engaged in vegetable farming are literate. About 43.3 %which was the larger proportion had household size within the ranges of 6-10 persons. The findings also revealed that 61.7% of the women vegetable farmers had no access to extension contact. The findings also revealed that majority (73.3%) of the women engaged in dry season vegetable farming employed both hired and family labour to carry out their vegetable farming. Also majority (99.3 %) of the women involved in dry season vegetable farming were married, and that larger proportion (48.3 %) of the women engaged in dry season vegetable farming had been farming for 6-10 years, 31.7% had farming experience of 11-15 years, while only 10% had farming experience of over 20 years. The multiple regressions co-efficient (R2) from the findings was found to be 0.775. The result from the findings showed that the age, household size and marital status of the women involved in dry season vegetable farming were significant at one percent level of significance, while only their farming experience

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was significant at five percent level of significance. However, their educational status, farm size and number of extension contact were not significant. Also, educational status, farming experience and farm size were positively correlated with the income of the women engaged in dry season vegetable farming. The total cost of production of vegetable per hectare was N37, 608.00. The total revenue (TR), Gross Margin (GM), Total variable cost (TVC), and Return on Naira Invested (ROI) by women engaged in dry season vegetable farming were: N60, 391.67, N31, 516.67, N28, 875.00 and N1.09 respectively.

The findings of the study revealed that dry season vegetable farming is a profitable business in the study area. Nevertheless, the profit margin can be increased if the problems affecting the women engaged in the venture are looked into. These problems include high cost of irrigation equipment, inadequate credit facilities, high cost of transportation, inadequate input and incidence of pest and disease.

Based on the findings in the study area, the following suggestions are recommended: -

- i. Women involved in vegetable farming are encouraged to join or form cooperative society in order to source funds from government, NGOs as well as access credit facilities from financial institutions to boost vegetable production.
- ii. Government should subsidize the price of farm inputs, and irrigation facilities to make them accessible and affordable to vegetable farmers.
- iii. Government should construct boreholes and develop river basin irrigation schemes to ensure steady supply of water for dry season vegetable farming. Also, good storage facilities should be provided in order to minimize the losses incurred by dry season vegetable farmers due to spoilage/wastage of the vegetable.
- iv. Extension services should be provided to update the women farmers in recent global trend in vegetable production.

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