

## **Full Length Research**

# **Cost Revenue Analysis of Tomato Production in Talensi Nabdam District of Upper East Region, Ghana.**

**\*Farida Abubakari and Fariya Abubakari**

Department of Agricultural economics, Agribusiness and Extension, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Corresponding Author email address: [uniquefarida@live.com](mailto:uniquefarida@live.com)

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The study focused on the profitability of tomato production in the Talensi Nabdam District of Upper East Region of Ghana. A total of 100 respondents were interviewed using questionnaire. Data was analyzed using descriptive statistics and the income statement. The arithmetic mean was used to find the average cost of production, output per acre and return per acre. Tomato production was found to be profitable with a profit of GH¢ 284.83 per hectare, output of 1,716kg per hectare, gross income of GH¢1,304.16 per hectare and return per Cedi invested was found to be 0.279 Pesewa. Labor constituted 62% of the total variable cost and this shows the high intensity of labor in tomato production.

**Keywords:** Cost; Revenue; Tomato; Production; Profitability.

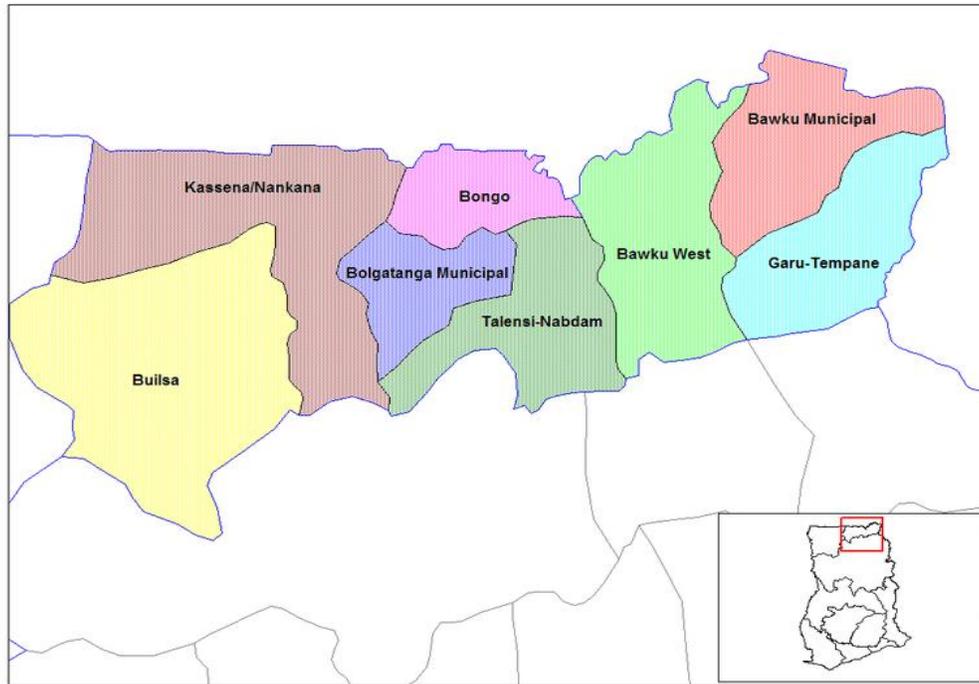
## **INTRODUCTION**

Despite all efforts by Trade and Investment Program for Competitive Export Economy, research stations such as Savanna Agricultural Research Institute and Government among others to come out with technologies to help boost tomato industry, production is still below local consumption. This could be attributed to problems including lack of reliable market for their produce, high cost of inputs, price fluctuations, and unavailable storage and processing facilities, high credit and irrigation costs (Farida & Fariya, 2014).

Farida and Fariya, 2014 also reported that, credit allows farmers to be able to allocate resources efficiently to increase their production. Institutions like Agricultural Development Bank (A.D.B), Ghana Commercial Bank (G.C.B) and Barclays Bank made heavy investment into the tomato industry which helped increase farm size and

also encouraged farmers to adopt new technologies such as tractor use, improved seeds and the use of chemical fertilizer to help increase production (MOFA, 2008). Most tomato farmers especially in the northern region where a greater percentage of tomato is produced are small scale farmers who because of the problem of collateral find it difficult to obtain loans from the credit institutions. Small scale farmers therefore depend on their own meager resource which in most cases is not adequate to purchase enough inputs for a higher output (Farida & Fariya, 2014).

Sailaja *et al.* (1998) indicates that vegetable production is profitable despite major constraints such as the non-availability of quality seed, inadequate credit and marketing facilities; shortage of water; and inefficiency in postharvest handling.



**Figure 1.** Map of Talensi Nabdam District  
Source; MoFA, 2015

Omotesho (1998) asserted that, tomato production was more profitable than wheat production on the Kano River Project since it results in more profitable use of land, irrigation water and labor than wheat production.

This research is therefore designed to examine the profitability of tomato production in the Talensi Nabdam District.

## METHODOLOGY

### *Description of the Study Area*

Talensi Nabdam District is one of the young districts created in 2004. The Assembly (TNDA) is under the Ministry of local Government, Rural Development and Environment. The Assembly's sphere of influence covers the delineation of the Talensi Nabdam constituencies LI 1739, 2004.

The district has a total population size of 100,879 made up of 50,865 females and 50,014 males, thus a gender ratio of 50.4% and 49.6% respectively; and has a population density of 10.6; based on the population and Housing census of 2000-2006. The population is mainly rural with about 90% not educated (MOFA, 2008). The female population form a majority of the illiterate population in the district (MOFA, 2008). There are mainly two ethnic groups in the district; Talensi and Nabdam. However there are traces of a few minority tribes settling in the district; notably gurunes, Mamprusi and Asantes

who migrated years ago for various reasons from adjoining communities.

The climate is described as tropical and has two distinct seasons, wet and rainy season which is erratic and runs from May to October and a long dry season that stretches from October to April with hardly any rains. The annual rainfall is 950mm. The area experiences a maximum temperature of 45°C in March and April and a minimum of 12°C in December.

The district has 180 towns and villages with a settlement pattern which is predominantly rural. The spatial organization settlement is dispersed, which render service location and provision very difficult. It has settlement falling within level three, four and five. The settlement pattern allows for compound farming and the rearing of animal. The area is not scheme, to guide development and so the proliferation of physical developments is mostly haphazard as development is fast outstripping planning interventions. The district has total number 8,839 houses, 16,375 households and also has an average household size of 6 persons and room occupancy of 4-5 persons. It has two main dialectic areas, the Talensi and Nabdam; who speak Taleni and Nabit. Figure 1

### *Data types, sources, sampling technique, and analysis*

Data for the study was collected through the

**Table 1:** Average Output per Hectare of Tomato Production in 52kg Crates

Activity	Quantity given as gift(kg)	Quantity used for food(kg)	Quantity sold (kg)	Output per hectare (kg)
<b>Tomato production</b>	104	52	1,560	1,716

Source: Field survey, 2010

**Table 2:** Average Return per Hectare of Tomato Production

Activity	Output-per hectare (kg)	Average-price per kilogram	Return-per hectare (GH¢)
<b>Tomato production</b>	1,716	0.76	1,304.16

Source: Field survey, 2010

administration of questionnaire. 100 farmers were interviewed on cost of production and the output level of tomato for the purpose of this study. Purposive sampling was used in selecting four communities and simple random technique was used to randomly select 25 farmers from each community in that district.

The income statement was used to estimate the profit of tomato production. The income statement as defined by Michael (2009) is a financial statement that measures the success of a business for a period of time in terms of net income or loss.

The formulae for the estimation of the Profit are shown below:

$$NR = GM - TFC$$

Where

NR = Net Revenue

GM = Gross margin

TFC = Total fixed cost

Return per capital invested

= Net farm income / Total capital invested

The arithmetic mean was used to find the average cost of production per acre, output per acre and return per acre.

Production cost has two components; the fixed costs and variable cost. The variable cost comprise cost of seeds, fertilizer, pesticide, water levy and labour (land preparation, nursery care, reshaping of ridges, transplanting, weed control, pesticide spraying, harvesting and packaging). The fixed cost includes: Depreciation on cost of hoe, cutlass, watering can and pumping machine, land rent and interest on loan.

For the tools, the depreciation allowance was used to represent the cost allocated to the season of production under consideration. The depreciation was calculated using the straight line method.

Depreciation= cost of tools – scrap value / life span.

The average output per acre was estimated and then

multiplied by the average price to get the return per acre.

## RESULTS AND DISCUSSION

### *Production cost*

The total cost of production is made up of the sum of total variable and fixed cost. The total amount for the fixed cost items was GH¢ 114.33 and total variable cost was the sum of the cost of inputs (GH¢344.00) and labour cost (GH¢561.00) as shown below.

Total cost of production= Total fixed cost + Total variable cost

Average total cost of production =GH¢114.33 +GH¢ (344.00 +561.00) = GH¢ 1019.33

### *Returns*

The average output per hectare of tomato production is the sum of quantity given as gift, quantity used as food and those quantities which were sold in 52kg crates. This is shown in Table 1.

The average return per hectare was computed by multiplying output per hectare by the average price per kg of tomato. This is shown in Table 2.

### *Income statement*

The income statement is made up of the gross income of GH¢ 1304.16 and total variable cost of GH¢905.00, total fixed cost of GH¢114.33 and net farm income of GH¢284.83 as is shown in Table 3.

### *Capital productivity*

The financial viability of dry season tomato production

**Table 3. Item Amount (GH¢)**

Gross income less:	1,304.16
Variable cost:	60.00
Seeds/ Seedling	8.00
Pesticide Fertilizer	81.00
Water levy	20.00
Fuel	175.00
Labor	561.00
Total variable cost	905.00
Gross margin less	399.16
Fixed cost: Depreciation	24.33
Land rent	90.00
Total fixed cost	114.33
Net farm income	284.83

was performed using the return per capital invested.  
Return per capital invested

$$= \text{Net Farm Income} / \text{Total capital invested}$$

$$= 284.83 / 1019.33$$

$$= 0.279$$

The return per capital invested was found to be 0.279 Pesewa. This means that for every Ghana cedi invested by the tomato producers, a 30 pesewa gain is realized.

## CONCLUSION

The net farm income and the return to capital invested indicated that dry season tomato production in Talensi Nabdam district is a viable and profitable venture. The research also reveals that, tomato is labor intensive since it constitutes more than half of the total variable costs (62%).

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## REFERENCES

1. Abubakari, Farida and Abubakari, Fariya (2014). Analysis of Production and Marketing Constraints of Tomato among Rural Farmers in Talensi Nabdam District of Upper East Region of Ghana. IJASRT in EESs, 2014: 4(1). Available at SSRN: <http://ssrn.com/abstract=2568171>
2. Michael, R.L. (2009). Income Statement-A financial management tool. USA. Kansas State University Agricultural Experiment Station and Cooperative Extension Service
3. Ministry Of Food and Agriculture (1997-2009). Production and Marketing Department.
4. Regional Coordinating Unit, (2003).
5. Sailaja, D., Raju, V.T., Choudary, N.A. And Rao D.V.S., 1998, Resource use efficiency on vegetable farms. *South Indian Horticulture*, 46(1-2):119-121.
6. Omotesho, O.A. (1998). Comparative Profitability Analysis of Wheat and Tomato, Kano River Irrigation Project, Kadawa, Nigeria. Department of Agricultural Economics and Farm Management, University of Ilorin. Center Point , Vol.8, No.1