Challenges faced by Tiger Nut (Cyperus esculentus) Producers in Bogoro Local Government Area of Bauchi State

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Abstract
The study examined the importance and challenges faced in tiger nut production in Bogoro local government area of Bauchi State. Multi-stage sampling procedure was used to select 100 respondents from which primary data were collected using a structured questionnaire. Percentage, pie-chart, and histogram were used to analyze the data. The study shows that 35% of the respondents were within the age group of 41-50 years. The study also revealed that majority (56%) of the respondents were females, majority of the respondents (74%) produced brown type of tiger nuts with 54% of them generating their farm labour from family members, majority of them (39) spent between 6,000-8,000 naira annually in its production. Consequently, 56% of the respondents harvest between 1-5 bags of tiger nuts annually. The result also reveals that majority (72%) of the respondents produced between 1-5 bags of tiger nut in a year. Challenges faced by producers of tiger nut indicated that majority 28% of the respondents are faced with difficulties associated with pre-planting activities, such as cutlass injury, stamps and thorn injury, snake bite, waist pains and general body pains during preparation of land for tiger nut production. 23.4% are faced with challenges associated with the application of agro-chemicals such as chemical poisoning during spraying and skin irritation during and after spraying, 20.1% are faced with challenges associated with post planting activities, 17% of the respondents are faced with the challenges associated with post-harvest operations and 10.9% of the respondents are faced with the challenges associated with harvesting of tiger nut. It is recommended that farmers should be educated on proper ways of using agro-chemicals. Government and Non-governmental organizations should help provide enough and improved farming facilities to provide remedies to pre-planting and post planting challenges.

Keywords: Importance, Challenges, Tiger nut, Production

Introduction
Tiger nut (Cyperus esculentus) is an evolving grass-like plant that belongs to the sedge family (Bamishaiye and Bamishaiye, 2011). A number of names such as chufa, Zulu nuts and yellow nut sedge have been attributed to the plant (Pascual, Maroto, Lopez-Galarza, Sanbautista, and Alagarda (2000); Rubert, Sabastià, Soriano, Soler, and Mañes 2011). In Nigeria, it is known as Aya in Hausa, Ofio in Yoruba and Akiausa in Igbo where varieties (black brown and yellow) are cultivated. Among these only two varieties, yellow and brown are readily preferred variety to all
other varieties because of its inherent properties like its bigger size, attractive color and flesher yields, more protein and possess anti-nutritional factors (Okafor et al., 2011).

According to Koranteng et al. (2014) the demand for tiger nuts for local consumption is quite high, and as a result it is quite expensive. There are indications of a viable export market for the crop. In Nigeria, tiger nut is available in fresh, semi-dried and dried form in the markets where it is sold locally and consumed even uncooked (Bamishaiye and Bamishaiye, 2011). Tiger nuts are under-utilized due to lack of information on their nutritional potential (Eteshola and Oraedu 1996). Bamishaiye and Bamishaiye (2011) posited that a lot of people eat the tiger nut without knowing the nutritional benefits and products that can be obtained from it like tiger nut oil and milk. Tiger nut milk is very nutritive and energetic drink, both for young and old. A part from starch and proteins tiger nut is also rich in potassium, phosphorous, vitamin E. It defends the internal mechanism and prevents both constipation and diarrhea and has never been found to produce allergy (Balewu and Abodurin, 2008). Despite the nutritional value of tiger nuts, its production is undermined. The challenges faced in the production of tiger nuts in the study area has not been documented hence the need for documentation in search for solution for improved production.

According to Cole (2006) and Koranteng et al. (2014), agricultural work possesses numerous characteristics that are risky for health: exposure to the weather, close contact with animals and plants, extensive use of chemical and biological products, difficult working postures and lengthy hours, and use of hazardous agricultural tools and machinery. Tiger nut production also undergoes difficult working postures, lengthy hours of work and use of hazardous agricultural tools and machinery. It is against these premise that the study investigates the Importance and Challenges of Tiger Nut (Cyperus esculentus) Production in Bogoro Local Government Area of Bauchi State, Nigeria.

**Purpose of the study**

The study sought to:

1) Examine the profile of tiger nut producers in the study area; and

2) Identify challenges faced in tiger nut production

**Methodology**

Bogoro Local Government Area (BLGA) is located in the southern part of Bauchi senatorial district bordering some part of Plateau State. Bogoro Local Government Area has a land mass of about 5.918km², lies on longitude 10° 15° 58 ‘‘N/10, 26611°N and latitude 10° 2017 E/1033528E. The population of BLGA is 84,215 people at the 2006 census. There are three (3) district that make up BLGA Bogoro
local government area namely, Lusa, Boi, and Bogoro district. The major ethnic group in Bogoro are the Zaar (Sayawa). The climate and soil requirement of the area are suitable for growing crops such as, millet, maize tiger nut, rice, sugar cane, paper, groundnut guinea –corn and hungry- rice. The people of Bogoro are largely farmers practicing both subsistence and commercial agriculture.

**Population and Sampling Procedure**

A two stage sampling technique was adopted in selecting the total number of respondents. In the first stage BLGA was randomly selected. At the second stage, all the three districts of the local government were taken into consideration (Lusa, Boi and Bogoro). The selection of respondents was proportionately done across all the villages of the local government.

**Method of data collection and analysis**

A total of 105 questionnaires were administered to farmers, while 100 were returned and used for the purpose of analysis. Data was obtained by use of structured questionnaire administered to the respondents. Secondary information was obtained from textbook, journal, and internet etc. Data collected were analyzed using descriptive statistics such as frequency distribution, percentage (%), mean, bar chart, and pie chat.

**Measurable variables**

The selected characteristics of tiger nuts producers such as age, sex, marital status, farming experiences, educational status, household size, farm size and income level of respondent, type of tiger nut produced, source of labour of farmers, amount spent in tiger nut production, amount realized in a year from tiger nut, quantity of tiger nut produced as well as the problems encountered by the respondents in tiger nut production were measured.

Age of the respondents was measured in terms of actual years of birth to the time of interview. Sex was measured in terms of female to male ratio in the production of tiger nuts in the study area. Marital status was measured in terms of actual number of respondents married and those not married. Educational level was measured on the basis of finding out the literacy level of the respondents. The size of farm of farmers was measured based on the total size of farm cultivated specifically for tiger nut [production during the year of the study.

The specific challenges encountered during production processes by respondents is the dependent variable in this study. The challenges were measured on the basis of various difficulties experienced by farmers during production of the crop. This was measured by way of ranking the issues bordering the respondents. The ranking was identified from 1st (worst) to 5th (bad) problems.
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Figure 1: Type of tiger nut produced annually

Source: Field survey, 2018

Data presented in the Figure 1 reveals that 74% of the respondents produced brown Tiger nut and 26% of the respondents produced Black Tiger nut.
Figure 2: Sources of labour

Source: Field survey, 2018

This reveals that the majority 54% of the respondents used family labour, 25% used hired labour, 14% used cooperative labour and 7% of the respondents used both family and cooperative labour. The implication is that family members who are not willing to supply labour for the farm otherwise the production will face serious challenges.

Table 1: Amount of spent annually in production

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>₦3,000 – ₦5,000</td>
<td>31.0</td>
</tr>
<tr>
<td>₦6,000 – ₦8,000</td>
<td>39.0</td>
</tr>
<tr>
<td>₦9,000 – ₦11,000</td>
<td>19.0</td>
</tr>
<tr>
<td>₦12,000 and above</td>
<td>11.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field survey, 2018

The result indicated that the majority of the respondent 39% spent ₦6,000 – ₦8,000, 31% spent ₦3,000 – ₦5,000, 19% of the respondent spent ₦9,000 – ₦11,000 while 11% ₦12,000 and above.

Table 2: Distribution of respondents according to quantity of tiger nut produced annually

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 5 bags</td>
<td>56</td>
</tr>
<tr>
<td>6 – 11 bags</td>
<td>20</td>
</tr>
<tr>
<td>12 – 17 bags</td>
<td>15</td>
</tr>
<tr>
<td>18 bags and above</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field survey, 2018

The result in table 2 indicates that majority of the respondents 56% produced between 1-5 bags of tiger nut, 20% produce 6-11 bags, 15% of the respondents produces 12-17 bags and 9% produce 18 and above bags of tiger nut.

Challenges Faced by Tiger-nut Producers

Tiger nut operations include firstly, pre-planting and planting (land clearing, burning, felling of trees and stumping, ploughing and harrowing, lining, pegging, mount making, and planting the exposed nuts and gradually seeds. Secondly, post planting (weeding, thinning, pruning, control of Negro bug, application of agro-chemicals. Thirdly, harvesting (soil is loosened around the nuts and gradually exposed the tigernut with the hoes, plucking and gathering of nuts) and lastly, post-harvest (drying of nuts sorting of nuts, bagging and transportation).
The Table 3 indicates that the majority 28% of the respondents are faced with challenges associated with pre-planting activities, such as cutlass injury, stamps and thorn injury, snake bite, waist pains and general body pains during preparation of land for tiger nut production. 23.4% are faced with challenges associated with the application of agro-chemicals such as chemical poisoning during spraying and skin irritation during and after spraying, 20.1% are faced with challenges associated with post planting activities, 17% of the respondents are faced with the challenges associated with post-harvest operations and 10.9% of the respondents are faced with the challenges associated with harvesting of tiger nut.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges associated with pre-planting activities</td>
<td>28.3</td>
<td>1st</td>
</tr>
<tr>
<td>Challenges associated with post-planting activities</td>
<td>20.1</td>
<td>3rd</td>
</tr>
<tr>
<td>Challenges associated with application of agro-chemicals</td>
<td>23.4</td>
<td>2nd</td>
</tr>
<tr>
<td>Challenges associated with harvesting of tiger nut</td>
<td>10.9</td>
<td>5th</td>
</tr>
<tr>
<td>Challenges associated with post-harvest operations</td>
<td>17.4</td>
<td>4th</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Field survey, 2018</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion and Recommendations**

The major challenges faced by the farmers were challenges associated with pre-planting activities and challenges associated with application of agro-chemicals such as cutlass injury, stamps and thorn injury, snake bite, waist pains and general body pains during preparation of land for tiger nut production.

Government should provide enough and improved farming facilities to provide remedies to pre-planting and post planting challenges. Farmers should be educated on proper ways of using agro-chemicals to avoid hazards such as chemical poisoning during spraying and skin irritation during and after spraying. Improve storage facilities should be provided by the government to farmers to cope with the challenges associated with post-harvest operations. Improved harvesting facilities should be provided to remedies challenges associated with harvesting operations.

**References**


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