ABSTRACT

The realization of a study on commercial DIY and the involvement of Arab women in the cultivation of okra in the city of Dabanga, in the department of Logone and Chari in Cameroon makes it possible to characterize this production in this precarious environment. The objective of this article is to study the mode of production and marketing of okra cultivation by the Arab women of Dabanga, the challenges and the prospects they face to get out of this commercial tinkering. Surveys and observations show that more than half of the households in the city of Dabanga practice agriculture for family self-consumption or the sale intervenes to fill certain deficits of other products. Okra cultivation occupies two women out of three during the rainy season and one woman out of two during the dry season in the commune of Dabanga. Cultivated in a traditional and anarchic way, okra can be found in the markets of surrounding towns such as Maltam, Goulfé, Doublé, Kousseri and in those of neighboring countries such as Ndjamena in Chad.

Keywords: Arab Women, Commercial DIY, Dabanga, Okra

I. INTRODUCTION

Highlight Peri-urban agriculture concerns production in intermediate areas between the city and the countryside. This type of agriculture represents for the most part vegetable crops such as vegetables and fruits. Traditionally, market gardening was the domain of women who practiced it during the rainy season not far from the huts (Seignobos & Iyébi-Mandjek, 2000). Several varieties of vegetables and fruits are then part of the basket of the Arab women of Dabanga who face the vagaries of the weather and the phenomenon of cross-border insecurity. The practice of agriculture here concerns seasonal crops (cowpea, millet, groundnut, okra, etc.) and off-season crops (sorghum, onion, okra, cabbage, folére, etc.). This production, mainly intended for family consumption, is increasingly transported by women to the markets of surrounding towns and neighboring countries to earn a little money.

The locality of Dabanga in Logone and Chari is the perpetual scene of the incursion of terrorists from the Boko Haram sect. Not a month goes by without members of the said sect disturbing the tranquility of the populations of the border areas with neighboring Nigeria. The last attack by this sect in the Dabanga area, which incidentally hit the headlines, dates from March 29, 2021. According to Saïbou Issa (Saïbou, 2017), the authority of the State struggles to impose itself in the face of this phenomenon due to the porosity of the borders. It is in this psychosis installed in the daily life of women by the Boko Haram sect that the Arab women of Dabanga maintain activities among which the cultivation of okra which in this locality is very important. This biannual production around the huts is an activity that occupies the Arab women of Dabanga under the watchful eye of their husbands. Seasonal okra cultivation is spread over a period of three months (July/September) with some extension due to climate change. The particularity of this season is that men are not involved in the production and marketing of okra.

Off-season cultivation, on the other hand, extends from November to February. The presence of men in this circuit is significant. According to Seignobos (Seignobos & Iyébi-Mandjek, 2000): “When the cultivation of women’s huts evolved into market gardening, in the off-season, they passed into the hands of men”. men do not participate directly in the production of okra but their action is considerable for the development of this culture. Some women set up their okra growing space near onion fields and off-season vegetables practiced by men. From soil preparation to irrigation and plant maintenance, the presence of men is felt. These two production methods mobilize different resources for the production of okra.
II. METHODOLOGY

A. Materials and Methods

The town of Dabanga in Logone and Chari was selected for this study on commercial DIY and the involvement of Arab women in the cultivation of okra. This border locality with Nigeria is a commune of Logone Birnie in the canton of Kalakafar. Its population was estimated at about 871 people (BUCREP, 2021). This part of Cameroon is characterized by a Sudano-Sahelian climate which includes two proportionally different seasons (Daka et al., 2021). A dry season that is all the more rigorous and long (seven months and more), it extends and intensifies further north away from the Mandara Mountains. There is significant insolation and high and often very high temperatures when approaching the shores of Lake Chad. The city of Dabanga is at the center of the vandalism activities of the Boko Haram sect. The commercial DIY of the women of this locality faces a set of obstacles in terms of production and marketing.

B. Data Collection Equipment

Data collection in the context of this article revolves around documentary research, observations and semi-structured interviews with the actors involved in the process of production, marketing and consumption of Dabanga okra.

Documentary research is according to Grawitz (Grawitz, 1993); a documentary technique which consists of a systematic search of all that is written having a connection with the field of research. Scientific documents on the cultivation of okra in the city of Dabanga during this period of security and health crisis are not abundant. Nevertheless, some authors have focused their reflection on the economic importance of okra cultivation in the far north of Cameroon (Temple, 1998), (Seignobos & Iyébi-Mandjek, 2000). This work has chosen as a field of research the locality of Dabanga because, women develop survival strategies for the production of okra.

According to Beau and Weber (Mauger, 2017), an unarmed observation is empty, an over-armed observation learns nothing. Observation is an action of looking attentively at beings, things, events in order to study them and draw conclusions. This data collection technique allowed the researcher during the stay in Dabanga to analyze the different practices related to the cultivation of okra. The Arab women of this locality are at the center of the production and marketing of the okra crop. This practice is done in a kind of commercial DIY. The survey focused on a sample of thirty-two women for the realization of this work. The observation was made in seasonal and off-season okra fields. The irrigation spaces during the dry season, peripheral markets and those of the sub-region have been the subject of a meticulous analysis. The aim here was to perceive, memorise and note the phenomena relating to the cultivation of okra.

Interview is a set of investigative processes that uses a mechanism of verbal communication to gather information related to a specific topic. As part of this work, the interview was carried out in the okra fields, with the households and markets of Dabanga, Maltam and Kousseri. An interview carried out with intermediaries and wholesalers from neighboring Chad was essential. The total sample is made up of twelve (12) households, thirty (30) traders, therefore twenty (20) intermediaries and ten (10) wholesalers.

C. Data Analysis Method

Data analysis is a research technique for the objective and systematic analysis of the manifest content of collected data with the aim of interpreting it (Daka et al., 2021). This part presents the tools used to analyze the information collected in the field.

All of the qualitative data collected during this survey was transcribed as the survey evolved. The cultivation and anarchic marketing of okra by the women of Dabanga led the researcher to a systematic analysis of the themes that revolve around this subject. A cross-sectional analysis of the content of the themes was carried out for all the players in this sector. The results reached by the researcher for the production of this article have enabled him to conclude that the cultivation of okra and its marketing in this study area follows a pattern that is not defined beforehand by the actors involved in this sector. Each has its own strategy to be able to exploit each space of freedom.

III. RESULTS AND DISCUSSION

Originally, okra is a plant from Ethiopia, from the Malvaceae family, genus Aboloschus and species Esculetus. There are two varieties in the production circuit in Cameroon. Klemsen, a stickier variety and black okra which is not appreciated by some housewives.

A. Requirement of Climate and Soil

Like the rest of the entire national territory, the Far North of Cameroon has particularities both in terms of climate and the composition of its soils.
The climate plays a determining role in the establishment of human activities. According to the Food and Agriculture Organization of the United Nations (FAO, 2014) sub-Saharan Africa represents 13% of the population of developing countries, 450 million peasants and 206 million undernourished people [...] in the South of the Sahara in particular” (Daka & Tamira, 2019). This statistic represents a population facing poverty and undernourishment where the dominant strategy remains agriculture (Kossoumna et al., 2010). This agriculture is linked to precipitation, humidity, sunshine, atmospheric pressure, wind and temperature in this study area, as was previously emphasized. This tropical zone has an average rainfall which is around 400 to 1100 mm/year. Water supply is very important for seasonal and off-season crops. Seasonal okra benefits directly from its rainfall for its development. Off-season production depends on surface water reservoirs and specially constructed wells.

The scarcity of rains in the Dabanga area imposes the cultivation of okra, which has a fairly short production cycle and is resistant to drought and disease.

The strategy adopted by the women of Dabanga is that of sowing seasonal okra as soon as the first rains fall. This practice allows the plant to reach maturity before the rains recede. The complete cycle of okra being spread over a period of approximately 49 to 60 days, it can be harvested several times during the week. It should be noted following the above that germination requires 17 days at 20°C, 13 days at 25°C and 7 days at 30°C in the dry season, the women of Dabanga practice this activity along the tanks of water and wells dug by men for the irrigation of onions and vegetables.

This first analysis can be concluded by saying that the climate in the sense of temperature and pressure are not factors that can lead to the reduction of okra productivity in Dabanga. It is the availability of water and soil elements that can be an obstacle to the development of this activity in this border town.

Educational study is a prime factor for every earth-related business. Agriculture is one of the activities that are essential to the establishment of a fertile land. Okra requires sandy soil, which is not too wet and which is not subject to daily cold. This characteristic of tropical plants allows the development of okra in the Dabanga area. Its growth being between 26°C and 28°C, the soil is a support for direct sowing in the season and sowing in pockets during the dry season. Rich in vitamin A, Ca and P, okra is sown between 3 to 4 seeds with an interval of 80 cm for ridges and 60 cm for pockets. This culture needs to be aired to allow the fruits to take on volume in this period of time which is favorable to it.

The distribution of soil for okra cultivation in Dabanga is relatively linked to the two types of production. Production in the rainy season does not require a lot of work. Women rid soil surfaces of weeds using machetes or bikordi. They then proceed to the method by burning these herbs after drying. The second production is different and requires human intervention.

Off-season production requires prior preparation of the soil by clearing it of weeds using the previous technique. The remoteness of these fields from the huts often leads to the stump removal of the plots using a rotary spade. It is the men who take care of this activity. They then make pockets or ridges depending on the type of soil. A new form of land preparation in the rainy season has been gaining momentum in recent years in this part of Cameroon. This is the use of chemical herbicides in powder or liquid form to eradicate weeds. This easier and more economical method in terms of expenditure of energy and financial means nevertheless remains a danger for the soil and human consumption.

B. Fertilization

Like soil preparation, the women of Dabanga use two fertilization techniques depending on the season. These two soil enrichment methods are diametrically opposed in terms of cost and availability.

The first method is natural and does not require enough means to prepare the soil for growing okra. The women of Dabanga use cow and goat dung and certain waste from kitchen work to be used to fertilize the okra fields. This collection of organic elements is done throughout the dry season although the techniques used for composting are not up to date. They just collect in the fields.

Rotating plots and fallowing are a natural technique used by the latter to allow the soil to regenerate. The dry season always leads to changes in activities in this part of Cameroon, which during the rainy season do not require enough means for the cultivation of okra. Vegetable crops need to be enriched with mineral elements for a good harvest. This often poses a problem according to Ela (Ela, 1998): “fertilizers and insecticides only existed for farm crops”. The main cash crop in the Far North since the 1950s has been cotton. The installation of the chemical elements is ensured for each cotton campaign by SODECOTON (Daka et al., 2019). According to Roupsard (Roupsard, 1987), “Cotton has become over the last four decades the first product of exploitation in North Cameroon”. As a result, NPK 15.20.15.16.1 and NPK 22.10.15.5.1 fertilizer is only available at the beginning of each cotton campaign, some cotton growers put them on the black market (Daka, 2018). The women of Dabanga take the opportunity of the purchase of inputs by the men for the cultivation of onions and vegetables to be able to redirect to their okra fields. Chemical fertilization of okra takes place 20 days after sowing. The tinkering of the latter does not allow them to respect this phase or the three-leaf okra.

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C. Irrigation

Irrigation in the fields is only done in off-season crops. This practice does not require a daily supply of water because okra tolerates drought better. Although during this period, the plots are installed near market garden products such as onions, tomatoes, vegetables. The irrigation frequency of okra is not defined according to the irrigation schedule of other crops. This aspect should not also be neglected because the lack of water leads to the regression of production and the presence of diseases. It would be important to propose here a summary table of some phytosanitary problems related to the cultivation of okra by irrigation in Dabanga (Table I).

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Symptoms</th>
<th>how to fight these diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mildew</td>
<td>Greyish down on the leaves</td>
<td>Respect the technical itinerary</td>
</tr>
<tr>
<td>Flies</td>
<td>Development of sooty mold on the leaves</td>
<td>phytosanitary diagnosis</td>
</tr>
<tr>
<td>Tadrous Locusts</td>
<td>Attack of leaves and roots</td>
<td>Use of phytosanitary products</td>
</tr>
<tr>
<td></td>
<td>Attack of foliage and flowers</td>
<td>observation of the crop’s health status</td>
</tr>
</tbody>
</table>


D. Harvesting Okra in Dabanga

Okra is a leguminous plant that fixes almost unknown nitrogen. Ten years ago, it promised to become the soya of the tropics. Every part of this vegetable is edible. This definition of okra allows the researcher to grasp the extent and the value of okra for the future of peasant societies. The harvest of okra takes place between 45 to 60 days after germination. The fruits can be harvested 3 times a week. Dabanga women have a myth that there are lucky women who have “okra hands”. When this category of women sows okra, the harvest is done daily because the fruits appear on the stem as if by “magic”. Okra cultivation in Cameroon produces around 120,000 tones annually.

The average yield after good monitoring is 12 to 15 tons per hectare. Harvesting okra can take weeks after the first fruits appear as pointed out above. Every part of okra is edible or at least serves a purpose in this locality. The leaves are often associated with fruits in the preparation of certain dishes in the Far North of Cameroon. It is also important to note that according to nutritionists, okra contributes to the growth and solidification of infant bones. The stems are used to make the roofs of traditional huts and sheds in this locality. Knowing the difficulties of access to firewood in this part of Cameroon, the Arab women of Dabanga after harvest cut the ears of okra and dry them then use them as firewood.

E. The Okra Economy Among Arab Women in Dabanga

The saving of okra among the Arab women of Dabanga is very significant. The incursions perpetrated by members of Boko Haram do not favor the specialization of these women in another economic activity. After the harvest, part of the production is consumed at the family level. It is the surplus that reaches the periodic markets of Maltam Zigagué, Doublé, Kousseri and N’djamena. This marketing is not done in a coordinated way because it is each woman who goes to the market with her quantity. Prices and quantities of okra are negotiated on site. When demand exceeds supply, the pile of fresh okra made up of 10 fruits sells for 100F. When fresh okra starts to become rare on the markets from March or market garden crops flood the market, the number is reduced and sometimes these prices rise to 200F the heap.

<table>
<thead>
<tr>
<th>Months</th>
<th>Dabanga</th>
<th>Maltam</th>
<th>Kousseri</th>
<th>N’Djamena</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>50 F</td>
<td>50-100 F</td>
<td>100-150 F</td>
<td>100 F</td>
<td>Less than 10</td>
</tr>
<tr>
<td>February</td>
<td>50 F</td>
<td>50-100 F</td>
<td>100 F</td>
<td>100 F</td>
<td>Less than 10</td>
</tr>
<tr>
<td>March</td>
<td>50 F</td>
<td>50-100 F</td>
<td>100 F</td>
<td>100 F</td>
<td>Less than 10</td>
</tr>
<tr>
<td>April</td>
<td>50-100 F</td>
<td>100 F</td>
<td>200 F</td>
<td>200 F</td>
<td>Less than 8</td>
</tr>
<tr>
<td>May</td>
<td>50-100 F</td>
<td>100 F</td>
<td>200 F</td>
<td>200 F</td>
<td>Less than 8</td>
</tr>
<tr>
<td>June</td>
<td>50-100 F</td>
<td>100 F</td>
<td>200 F</td>
<td>200 F</td>
<td>Less than 8</td>
</tr>
<tr>
<td>July</td>
<td>50-100 F</td>
<td>100 F</td>
<td>200 F</td>
<td>200 F</td>
<td>Less than 8</td>
</tr>
<tr>
<td>August</td>
<td>100 F</td>
<td>100 F</td>
<td>200 F</td>
<td>200 F</td>
<td>9</td>
</tr>
<tr>
<td>September</td>
<td>100 F</td>
<td>100 F</td>
<td>200 F</td>
<td>200 F</td>
<td>10</td>
</tr>
<tr>
<td>October</td>
<td>100 F</td>
<td>100 F</td>
<td>100 F</td>
<td>100-150 F</td>
<td>10</td>
</tr>
<tr>
<td>November</td>
<td>100 F</td>
<td>100 F</td>
<td>100 F</td>
<td>100-150 F</td>
<td>10</td>
</tr>
<tr>
<td>December</td>
<td>100 F</td>
<td>100-150 F</td>
<td>100-150 F</td>
<td>100-150 F</td>
<td>10</td>
</tr>
</tbody>
</table>


It is dry okra that brings a lot of benefit to Arab women. Surplus production is sometimes dried by the latter, which stores it on site. Trucks to destinations in the South of Cameroon negotiate this production on the way. There is also a parallel circuit that goes to Kousseri and N’djamena. Some intermediaries and wholesalers go to the village to reserve the bags of okra available in households. The bag of okra between

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the month of January to May costs around 6000F in Kousseri and less expensive in Dabanga because of the transport charge. As soon as the bag crosses the border to return to the market in Ndjamena, its price doubles. The bag of onions at the same period is sold in Ndjamena between 10000F and 12000F. This price drops in January because the fresh onion is still available on the Chad market. At the end of May, prices increased again with the scarcity of fresh okra on the market. Table II above summarizes the prices of fresh okra on peripheral markets. It illustrates the price of fresh okra in the markets of Dabanga, Maltam, Kousseri and Ndjamena throughout the year. The prices of fresh okra in the peripheral towns of Dabanga do not change considerably. The following table presents the summary of the prices of the bag of dry okra on the market.

| TABLE III: SUMMARY OF THE PRICES OF THE BAG OF DRY OKRA ON THE MARKETS |
|-------------------------------|---|---|---|---|---|
|                                | January-February | March -April | May -June | July - August | September-October |
| Dabanga                        | 4000            | -            | 4000-4500 | -             | 5000           |
| Maltam                         | 4000            | -            | 4000-4500 | -             | 5500           |
| Double                         | 4500            | -            | 4000-4500 | -             | 5500           |
| Kousseri                       | 6000            | -            | 7000-8000 | -             | 8000           |
| Ndjamena                       | 8000            | -            | 10000-12000 | - | 12000        |
| Maroua                         | 6500            | -            | 7000-8000 | -             | 8000           |
| Yaounde                        | 10000           | -            | 11000-13000 | - | 13000        |


Originally, the production of these statistics is the result of past observations and interviews with producers, intermediaries, wholesalers and housewives during the survey period. Reliable documentation is not available for the marketing of okra in Dabanga. Prices varied depending on the availability of these products in the markets. The improvement of this production circuit and its marketing remains an imperative for the producers of Dabanga. At the production level, improved seeds adapted to climatic conditions, pests and a reduced cycle are necessary to enable the Arab women of Dabanga to save money.

Finally, from this study on the commercial DIY of okra by the Arab women of Dabanga, several results emerge. Dabanga women grow okra for family consumption. The lean seasons, which lead to the depletion of certain foodstuffs, lead them to transport part of their production to the peripheral markets of Maltam, Doublé, Goulfé, Kousseri and to those of neighboring countries such as Chad. This article retraces the technical itinerary of this culture up to its commercial DIY.

IV. CONCLUSION

The cultivation of okra in the municipality of Dabanga brings added value to Arab women despite the fact that its marketing remains anarchic. This production helps to improve the living conditions of peasant women. However, certain factors limit the production and marketing of okra grown by Arab women in Dabanga. Apart from unfavorable climatic conditions, the improvement of production conditions remains an imperative to resolve these constraints. It is:

- The insertion of a new improved seed that is resistant to pests and climatic hazards;
- Reducing the cost of phytosanitary products;
- The organization of the entire vegetable sector both for production and for marketing;
- Train Arab women on okra production and storage techniques;
- Improve okra sales channels to surrounding markets and even those of neighboring countries.

Commercial DIY and the involvement of Arab women in okra cultivation in Dabanga is a study that integrated both primary and secondary data into the data collection process. The actors of okra production in this part of the country are developing survival strategies to be able to adapt to the difficult conditions in this area in security and social crisis.

CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.
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