

The Socio-Economic Impact of Food Products Produced by Farmers in The Commune of Kouto (Northern Ivory Coast)

Soualiho SOUMAHORO¹, Sophie Pulchérie TAPE²

^{1,2}Department of Geography, Peleforo Gon Coulibaly University in Korhogo, Ivory Coast

ABSTRACT: Agriculture is the main income-generating activity of the rural populations of Kouto. The finances generated by the sale of crops contribute to improving the living and working conditions of producers. This reality is seen in the communal area of Kouto, a northern locality in Côte d'Ivoire. This study analyzes the socio-economic benefits of the marketing of producers' food products in the commune of Kouto. The methodology adopted for this work is based on literature review, observation and field survey. Primary data collection tools such as the questionnaire and the interview guide served as a road map to navigate the field of investigation. The results reveal that 94.12% of producers are male, 80.39% are adults, 82.35% are unschooled and 5.88% of the workforce is foreign. Furthermore, this study showed that 54.58% of production is self-consumed compared to 45.42% which is marketed. Also, the marketing of food products is profitable for 14.81% of producers to send their children to school, 11.45% for the purchase and modernization of buildings, 17.51% for the maintenance of village pumps and mutual aid, 15.82% for the acquisition of manufactured goods, 8.42% for the wedding celebration, 14.48% for generation celebrations through the sacred wood, 6.73% for cyclical savings commonly called "tontines" and 10.77% for the organization of funerals in Senoufo country. Finally, the benefits of the commercialization of food production are a factor in the empowerment of producers' wives and the financing of future plots of the producers themselves in the commune of Kouto.

KEYWORDS: Kouto, producers, food products, socio-economic, spin-offs

1. INTRODUCTION

Located in the heart of the savannahs of northern Côte d'Ivoire, the commune of Kouto covers an area of 666 km², or 17.64% of the departmental territory, and is home to 5,593 people, or 31.83% of the departmental population (INS-RGPH, 2021). The economic, cultural and social influence of this area of northern Côte d'Ivoire is based primarily on the combination of exports and food crops. In fact, national policies have always encouraged food production since colonisation (Jean Louis CHALEARD, 1996). The pride of place accorded to agriculture shows that the savannahs of the north are ideal for food crops (Soualiho SOUMAHORO, Sophie Pulchérie TAPE, 2023). Savannah vegetation is the mainstay of cereal and oilseed production. The north therefore stands out as the millets zone (Jean Louis CHALEARD, 2003). In fact, agricultural production is the development of the natural environment in order to obtain plant and animal products useful to mankind, in particular those intended for human consumption (Josias ADEGNAND-JOU, 2021). Food crops contribute to the creation of a directly consumable product. This includes all cereals and starches (Kouadio BONI, 1975). They naturally extend to livestock and fishing products (A.P.A.D, 2006). To boost food production, undeniable natural conditions are necessary (Abdoulaye SAWADO, 1977). They make a vital contribution, as they favour the practice of food crop farming. In addition to these physical advantages, there is the unfailing support of the Ivorian government. Indeed, the country's authorities pay particular attention to this sector by granting substantial financial resources (Kouamé Hyacinthe KONAN *et al.*, 2016). To ensure that the funds allocated to the production of staple foods are used rationally, state-owned companies (SODEs) have been set up in the study area to supervise producers and distribute food products to markets. These are the National Agency for Rural Development Aid (ANADER) and the Office for the Marketing of Food Products (OCPV). This panoply of support structures for food crop farming is aimed at ensuring self-sufficiency, which guarantees food security. Moreover, food production is labour-intensive (Ekou NUAMA, 2006). Labour is the determining factor in production costs. Paid external labour, unpaid external labour, collective labour and family labour are the main links in the production and distribution chain (Mohamed GAFSI, 2007). Food crops are therefore grown by men and women (Ekou NUAMA, 2006, *op cit*). Growing food crops provides producers with the income they need to improve their living and working conditions. The growing commercialisation of food crops is increasing production by creating vast plots of land (Jean Louis CHALEARD, 1988). Farmers are therefore diversifying their production systems by developing food crops for commercial purposes (Audrey FROMAGEOT, 2008). The commune of Kouto is no exception to this agricultural logic. The aim of this research is to analyse the socio-economic benefits of marketing food crops grown by producers in the Kouto communal area in Côte d'Ivoire.

2. STUDY AREA

The commune of Kouto is the capital of the department of Kouto in the Bagoué region of northern Ivory Coast. It is located at latitudes 9°88 and 9°37 north and longitudes 6°87 and 6°40 west (Figure 1).

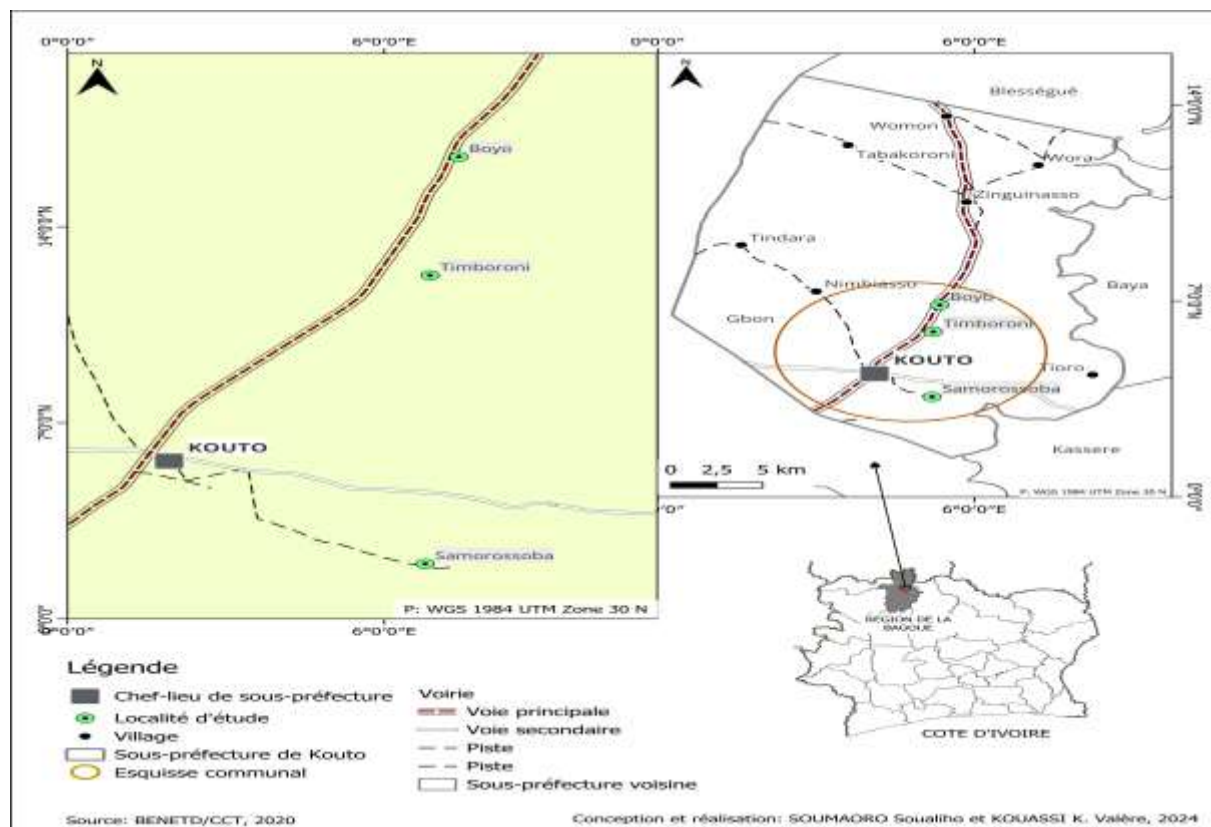


Figure 1 : Location of the study area

3. METHODS

A rigorous scientific approach was adopted in order to achieve our objectives. Documentary research was carried out in libraries and documentation centres. The library of the Peleforo Gon Coulibaly University in Korhogo (UPGC), the Korhogo municipal library, the Regional Department of Agriculture, Rural Development and Food Production in Boundiali, the ANADER regional office in Korhogo and the ANADER branch office in Boundiali, the National Centre for Agronomic Research (CNRA) in Korhogo and the Office for the Marketing of Food Products (OCPV) in Abidjan. The National Office for Technical Studies and Development (BNETD) and the National Institute of Statistics (INS) in Korhogo were visited to consult cartographic documents. Internet search engines such as Google scholar were also used to collect secondary data. With regard to primary data collection, the field survey was carried out between March and May 2022. To make the research more effective, a questionnaire was used to cover the entire study area and question the food producers. Interviews were also carried out with Kouto town council technical services officers on the number of markets, the regularity of local food products and the collection of municipal taxes. The individuals and rural localities to be surveyed were selected as follows: the study localities were chosen within a 10 km radius of Kouto town centre. All three (03) localities were surveyed. As for the selection of farming households to be interviewed, we used the reasoned choice technique, imposing criteria relating to the quality of the producer (food crop producer), the status of the farmer (at least one year), age (at least 25 years) and the specificity of the food crops (maize, rice, groundnuts, millet, sorghum, beans, yams). A representative sample was drawn on a sampling basis from a sub-prefectural agricultural population of 1,315, from which 51 heads of household from the selected villages were deducted. Based on the assumptions made for identifying the target villages and individuals, the sample size was determined using the probabilistic method of D. Schwartz (1995) :

$X = \frac{(z^2 \times p(1-p))}{d^2}$; X being the sample size, z the 95% confidence level (standard value of 1.96), d the margin of error at 5% (standard value of 0.05), $q=1-p$, $p = n/N$ with p the proportion of farm households concerned with food crops in the farm households of each village in the commune to be surveyed (n) in relation to the total number of farm households in the commune (N) in which the latter is located. Proceeding in this way for each village and dividing the result by 10%, we obtain the following numerical application for the village of Boyo: $X = \frac{(1.96)^2 \times 0.083(1-0.083)}{(0.1)^2}$ which is equal to thirty-one (31) heads of farming households. The results are shown in Table 1.

Table 1 : Number of heads of farming households surveyed in the study area

| Communes | Localities selected | Total number of heads of food crop farming households by gender, by locality withholding | Total number of heads of farming households by commune | Total number of heads of food crop farming households surveyed by locality |
|--------------|---------------------|--|--|--|
| Kouto | Boyo | 07/110 | 1315 | 02/29 |
| | Samorossoba | 03/41 | | 01/12 |
| | Timboroni | 02/24 | | 00/07 |
| Total | 03 | 12/175 | 1315 | 03/48 |

Legend : Blue=Female; Orange=Male

Table 1 shows that the field survey covered 51 heads of agricultural households out of a total of 187. Thus, 3 female heads of household and 48 male heads of household out of a total of 12 female heads of household and 175 male heads of household were interviewed. In addition, 62 women from the 48 food producers in the study area were also interviewed about their role in selling produce on the market. Statistical processing of the data was made possible by the use of IT tools. Word version 2010 was used to draft the document, while Sphinx version 4.5 was used to draw up the questionnaire. Microsoft Excel version 2013 was then used to display the tables and diagrams. Finally, QGIS version 3.12 was used to design and produce the map.

4. RESULTS AND DISCUSSION

4-1. Social and demographic profile of food producers in Kouto

4-1-1. Local food production dominated by male producers

Food production in the study block is carried out by both men and women. An analysis of Figure 2 shows that the female agricultural workforce is very insignificant, accounting for 5.88% of the total workforce compared with 94.12% for the male workforce. The presence of ancestral Senufo influences, where the role of women is limited to cooking and bringing up their daughters, could explain the low participation of women in food production.

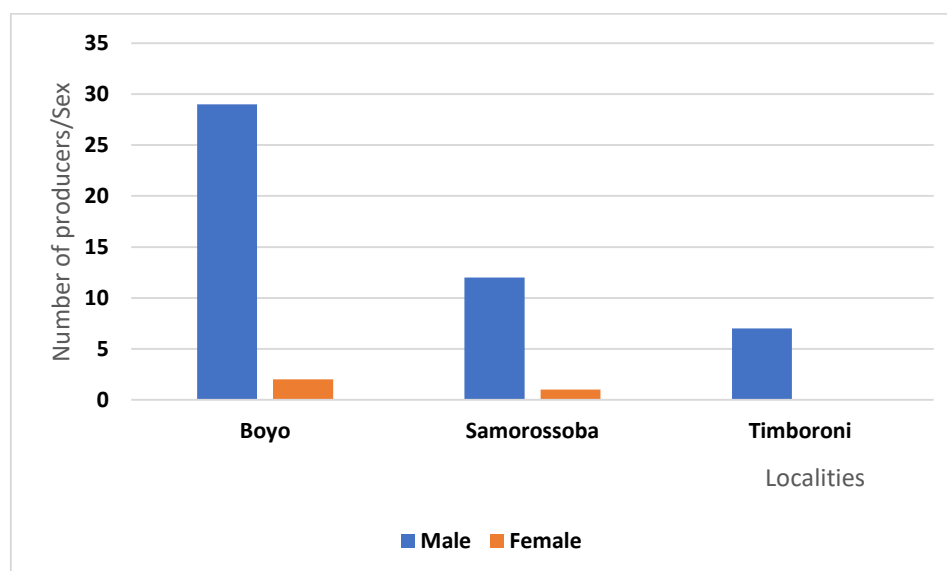


Figure 2 : Number of producers by sex

Timboroni is characterised by the non-participation of women in food production. Women's role is confined to the home, where they prepare hearty meals for their husbands. Photo 1 shows farmers clearing land for food crops in Boyo, 5 km from Kouto. These field results corroborate those of Guillaume Hensel FONGANG FOUEPE *et al.* 2019). These authors showed that plantain banana production in the western region of Cameroon remains dominated by men at 75.8%, whereas the Food and Agriculture Organization of the United Nations (FAO) (1983) estimates that African women are the main driving force in the food sector.



Photo 1 : Producers preparing a food crop growing area in Boyo

The level of education of food crop growers in the study area could also partly explain the nature of the cultivation methods and techniques used.

4.1.2. The primacy of unschooled producers in local food production

Farmer-producers of food crops have a low level of education. Figure 3 shows that 17.65% of farmers have a primary education, compared with 82.35% who cannot read, write or do arithmetic. The fact that the majority of producers do not attend school could be justified by the Senufo's strong attachment to their customs. So traditionally, school education for young Senufo is not seen as a priority.

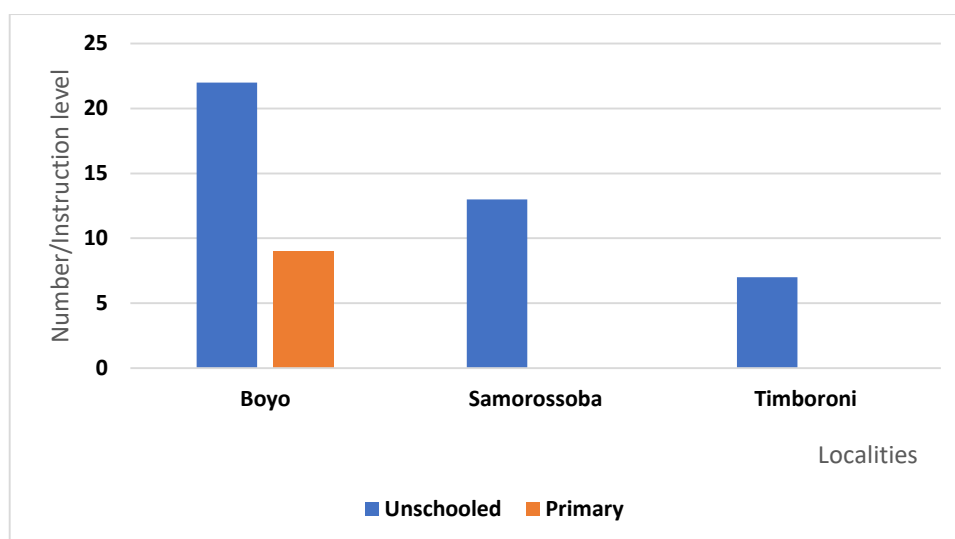


Figure 3 : Education level of heads of farming households

An analysis of Figure 3 shows that the rural areas studied are characterised by a predominantly illiterate population. However, Boyo has a high proportion of educated farmers, unlike the other study areas. This locality gives pride of place to the schooling of young Senufo, despite the maintenance and perpetuation of traditional values. Difficult access to agricultural land is a factor in the predominance of indigenous people in food production in the study block.

4.1.3. Local food production in the hands of indigenous Ivorians

The Senufo, originally from the region, is the landowner in the study area. Analysis of Figure 4 shows that 94.12% of the workforce are natives, compared with 5.88% foreigners, mainly Malians. The high proportion of Senufo masks the thorny problem of difficult access to agricultural land in the study area. Clandestine gold panning also attracts more foreigners to the detriment of agricultural production. Pastoral activity, which is the cultural identity of the Malian people of Peulh ethnicity, is grafted onto these reasons. These non-native populations therefore remain concentrated on the last 2 economic activities mentioned above.

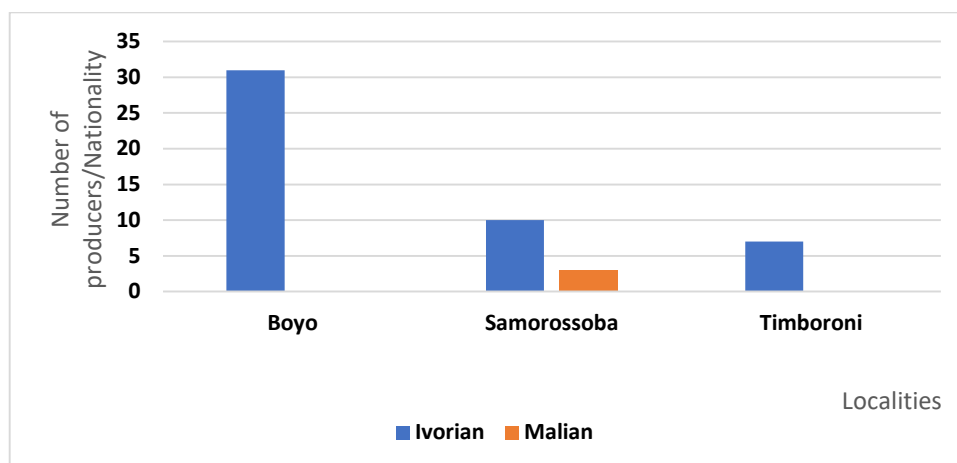


Figure 4 : Nationality of food crop farming workforce

Looking at Figure 4, Samorossoba is characterised by flexibility in terms of access to agricultural land, even though the proportion of non-natives with access to land is very low. Food production, on the other hand, is mainly a matter for adults.

4.1.4. The dominance of adult labor for the practice of subsistence agriculture

Food production accounts for more than 90% of the workforce. Thus, the agricultural workforce in the Kouto production basins is made up of older people (Figure 5). Figure 5 shows that 80.39% of farmers are adults, compared with 19.61% who are elderly. The graph shows that the average age of producers in the areas surveyed is 46. This median age is attributable to a massive exodus of young people to sites where clandestine gold mining is taking place, to be used as labour.

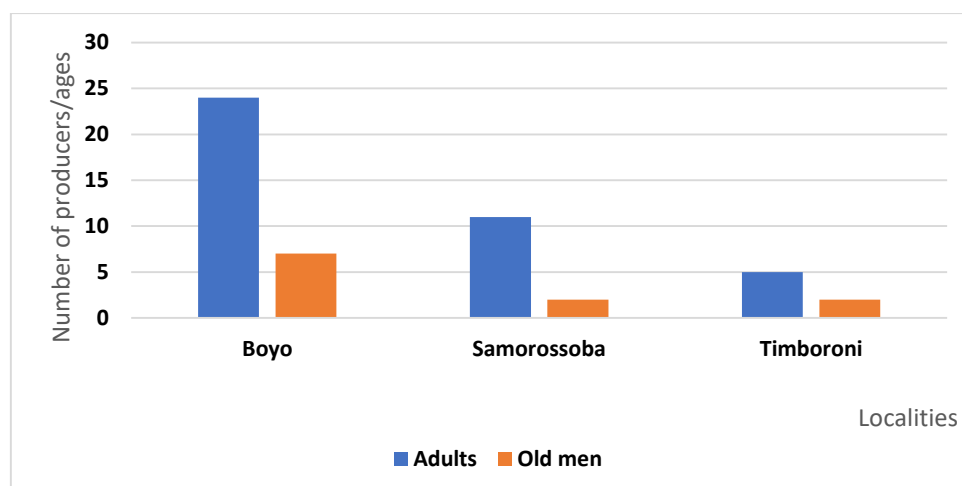


Figure 5 : Average age of growers by production area

The above socio-demographic characteristics could have an impact on the production and marketing of food products in the research area.

4.2. The socio-economic impact of food production on the well-being of producers

4.2.1. the advantages of local food production in the self-sufficiency of producers

Food production in the commune of Kouto meets the food requirements of the rural population. Total annual production for the three (3) rural localities is 673.101 kg. Maize forms the basis of the diet, accounting for 68.92% of total production, compared with 15.03% for groundnuts, 14.19% for rice and 1.86% for yams (Table 2).

Table 2 : Annual food crop production in kg

| Localities | Rice | Maize | Peanut | Yam | TOTAL |
|--------------|--------------|---------------|---------------|--------------|---------------|
| Boyo | 44000 | 231200 | 87700 | 11000 | 373900 |
| Samorossoba | 32500 | 167200 | 4000 | 1501 | 205201 |
| Timboroni | 19000 | 65500 | 9500 | 0 | 94000 |
| TOTAL | 95500 | 463900 | 101200 | 12501 | 673101 |

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However, Table 3 shows that yams are grown for self-consumption and groundnuts are grown mainly for marketing, with only 19.38% for consumption. In addition, 55.62% of maize and 80.94% of rice are consumed by farmers (photo 2). An analysis of Table 3 shows that the 3 localities have an annual production of 367.401 kg, or 7.203.94 kg/farm household/year for consumption. In addition, they spread out 30.5700 kg for sale in Kouto, i.e. 15.20 kg/citadin/year for marketing in Kouto for 20111 peoples. Specifically, 258.000 kg of maize are produced for consumption in the village, i.e. 5058.82 kg/farm household/year, whereas the ratio of maize produced in the town is 12.83 kg/head/year. The preponderance of groundnuts in the marketing chain of local food products could be explained by the monetary aspect for the schooling of their offspring and the physiological upkeep of their families. This thesis is in line with that of Laurence Wilhem (1997), who maintains that the supply of food products primarily ensures non-market channels for self-consumption.

Table 3 : Food crop production in kg for consumption per year

| Localities | R | ER | M | EM | A | EA | I | EI | TOTAL |
|---|--------------|--------------|---------------|---------------|--------------|--------------|--------------|----|---------------|
| Boyo | 31200 | 12800 | 130000 | 101200 | 12000 | 75700 | 11000 | 0 | 184200 |
| Samorossoba | 31700 | 800 | 76200 | 91000 | 1500 | 2500 | 1501 | 0 | 110901 |
| Timboroni | 14400 | 4600 | 51800 | 13700 | 6100 | 3400 | 0 | 0 | 72300 |
| TOTAL pro- duction consu- med | 77300 | 18200 | 258000 | 205900 | 19600 | 81600 | 12501 | 0 | 367401 |
| Gap between production and consumption | 18200 | | 205900 | | 81600 | | 0 | | 305700 |

Legend : *R = Rice consumed / ER = Difference between Rice produced and Rice consumed; M = Maize consumed / EM = Difference between Maize produced and Maize consumed; A = Groundnut consumed / EA = Difference between Groundnut produced and Groundnut consumed; I = Yam consumed / EI = Difference between Yam produced and Yam consumed.*



Photo 2 : Paddy rice stored in a warehouse in Samorossoba for self-consumption

In addition to food crops, producers also engage in pastoral activities. Table 4 shows that 60.87% of cattle, 24.77% of chickens, 7.37% of sheep, 3.96% of goats and 3.03% of guinea fowl are reared in the study block. This analysis shows that cattle and poultry farming are the most developed. The dominance of cattle could be justified by the use of oxen for harness farming (photo 3) and for the organisation of rituals linked to Senufo customs.

Table 4 : Heads of livestock per year by type of farming

| Localities | Chickens | Cabris | Sheeps | Steers | Guinea fowl | TOTAL |
|--------------|------------|-----------|-----------|------------|-------------|-------------|
| Boyo | 142 | 22 | 45 | 180 | 0 | 389 |
| Samorossoba | 40 | 1 | 0 | 243 | 0 | 284 |
| Timboroni | 87 | 20 | 35 | 238 | 33 | 413 |
| TOTAL | 269 | 43 | 80 | 661 | 33 | 1086 |

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The predominance of pastoral activity in Timboroni, as shown in Table 3, could be explained by the presence of Peulh from Mali, whose main activity is cattle rearing.



Photo 3 : Harness farming in Samorossoba

Photo 3 shows a pair of oxen supervised by two farmers practising harnessed farming. Table 5 shows that the 3 localities supply 450 head of animals to producers for consumption, i.e. 9 head/farming household/year, compared with 636 for marketing in the town of Kouto, i.e. 0.032 head/head/year. In addition, Timboroni is the leading rural locality for consumption from livestock farming.

Table 5 : Heads of animals for consumption by producers per year

| Localities | Chickens | Cabris | Sheeps | Steers | Guinea fowl | TOTAL |
|--------------|-----------|-----------|-----------|------------|-------------|--------------|
| Boyo | 46 | 10 | 15 | 80 | 0 | 151 |
| Samorossoba | 19 | 1 | 0 | 103 | 0 | 123 |
| Timboroni | 32 | 8 | 13 | 106 | 17 | 176 |
| TOTAL | 97 | 19 | 28 | 289 | 17 | 450 |

The sale of food products could have a significant impact on producers' living conditions.

4.2.2The impact of the marketing of local food products on the living conditions of Kouto producers

The 3 localities in the study area provide traders with a volume of 305700 kg/year of food products, i.e. 67.35% maize, 26.69% groundnuts and 5.95% rice (Table 6). However, groundnuts are the most widely marketed, accounting for 80.63% of total production. This is followed by maize and rice, with 44.38% and 19.06% of annual production respectively. These results show that groundnuts, unlike other crops, are grown for marketing purposes.

Table 6 : Annual food crop production in kg for marketing

| Localities | Rice | Maize | Peanuts | TOTAL |
|--------------|--------------|---------------|--------------|---------------|
| Boyo | 12800 | 101200 | 75700 | 189700 |
| Samorossoba | 800 | 91000 | 2500 | 94 300 |
| Timboroni | 4600 | 13700 | 3400 | 21700 |
| TOTAL | 18200 | 205900 | 81600 | 305700 |

In addition to food crops, the sale of livestock is an important portfolio for producers. Oxen are the most widely marketed, accounting for 58.49% of animals sold (table 7). The market value of cattle is much higher than that of other livestock. The average unit selling cost was 251.85 €, unlike the other animals, where selling prices ranged from 4.58 € to 53.42 €. In terms of marketing food animal products, the rural localities of Boyo and Timboroni are in first place.

Table 7 : Heads of animals intended for marketing per year

| Localités | Chickens | Cabris | Sheeps | Steers | Guinea fowl | TOTAL |
|--------------|------------|-----------|-----------|------------|-------------|--------------|
| Boyo | 96 | 12 | 30 | 100 | 0 | 238 |
| Samorossoba | 21 | 0 | 0 | 140 | 0 | 161 |
| Timboroni | 55 | 12 | 22 | 132 | 16 | 237 |
| TOTAL | 172 | 24 | 52 | 372 | 16 | 636 |

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In addition, the income generated by the transaction of local food products enables producers to live decently. Analysis of Figure 6 shows that the marketing of food crops improves farmers' living conditions. For example, selling food enables 14.81% of farmers to send their children to school. This low proportion is justified by the low level of school attendance among children in the communal area. The results of the field survey show that out of a total of 334 producers' children, only 161, or 48.20%, attend school. This trading activity also provides households with manufactured goods, including mobile phones, televisions, radios, fridges, solar panels and two- and three-wheeled vehicles. As a result, 15.82% of producers are recipients (Figure 6). In addition to the benefits mentioned above, the marketing of food crops enables farmers to contribute to the maintenance of village pumps (17.51%) and to invest part of their income in traditional savings known as tontines through their wives (6.73%). These savings are used to finance future plots of land. Lastly, food transactions benefit 11.45% of farmers through the purchase and modernisation of buildings, both in the village and in urban areas.

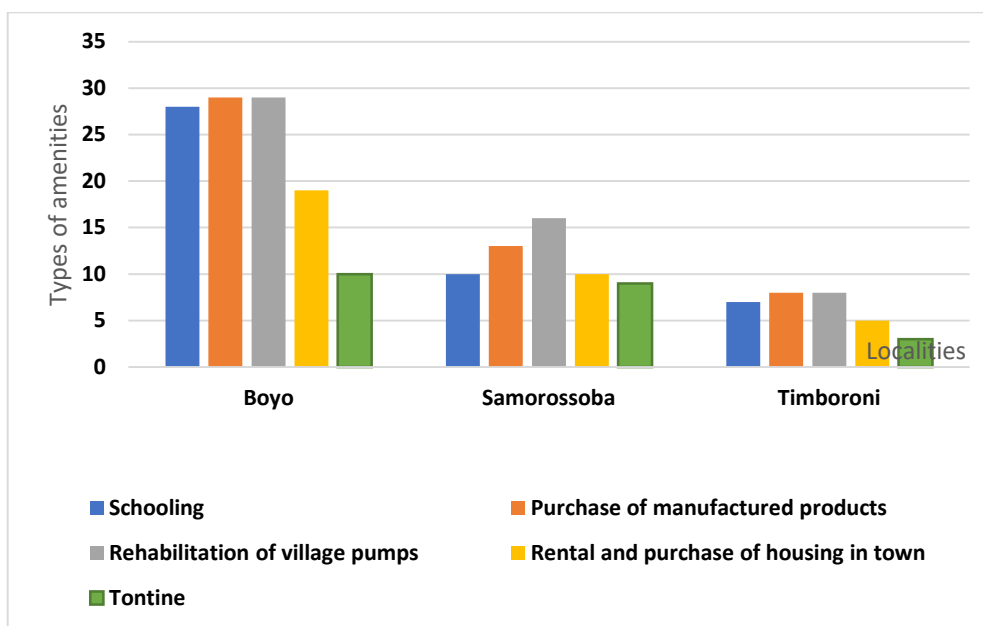


Figure 5 : Living conditions of food producers in the study area

Photo 4 shows the construction of a house using modern materials in Boyo.



Photo 4 : Modern building under construction in Boyo

Food production helps to maintain and perpetuate customs and traditions in Senoufo country.

4.2.3. The impact of the marketing of local food products in the perpetuation of socio-cultural values

Food products actively support people's actions in rural areas. Indeed, Figure 7 shows that funeral ceremonies, generation celebrations using sacred wood and weddings are occasions of high popular concentration where food plays a central role. Income from the sale of food crops in Kouto enables 10.77% of producers to organise funerals, 14.48% to organise generation celebrations after 7 years of initiation in the sacred grove and 8.41% to organise weddings.

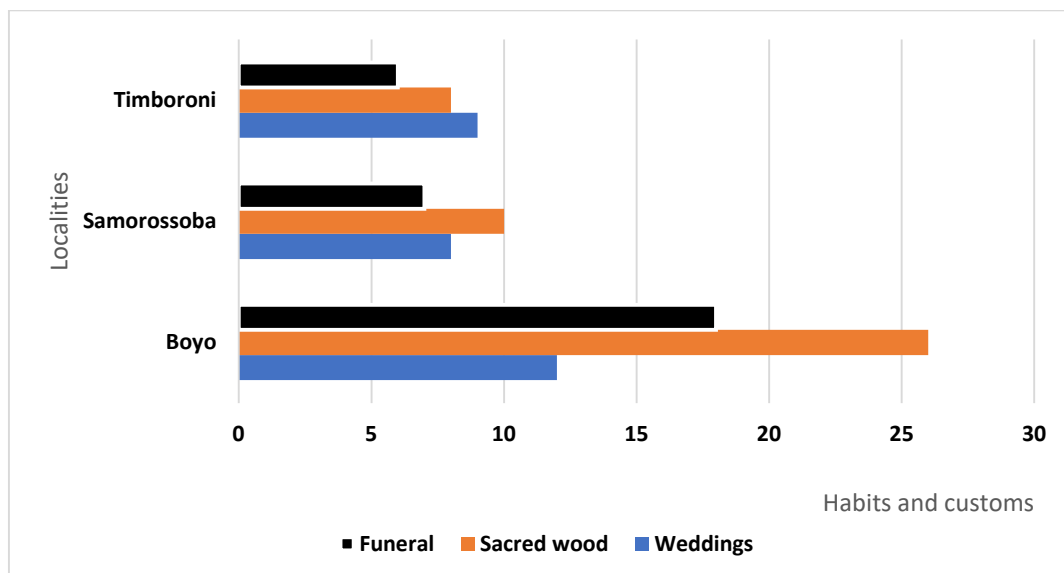


Figure 7 : Socio-cultural values

Photo 5 shows young Senufo in training in the sacred forest at Timboroni.



Photo 5 : Two young Senufo in training in the sacred forest at Timboroni.

Food-producing agriculture is a factor in empowering women in rural areas.

4.2.4. The impact of the marketing of local food products on the empowerment of women producer

Food production sustains traditional small-scale trade. This type of trade is largely conducted by women producers. Sixty-two women engage in this activity, especially on Sundays, the day of the Kouto urban market (Table 8). The financial resources from sales enable them to obtain a week's supply of ingredients for cooking. The women also prepare the weddings of their children, especially the girls, by selling local food crops. Photo 6 zooms in on women retailers buying goods from women producers in the Kouto market. The financial windfall from the marketing of these food products is a relief for producers, helping them to finance their farming activities. This social contribution of the sale of goods in favour of women producers converges with the studies of

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Jean Louis CHALEARD (1996, *op. cit.*). In essence, this author confirms that the marketing of foodstuffs is a source of autonomy for women, offering them the opportunity to purchase products for the family 'kitchen', especially in times of crisis.

Table 8 : Number of women food producers and sellers surveyed

| Localities | Number of women |
|--------------|-----------------|
| Boyo | 30 |
| Samorossoba | 15 |
| Timboroni | 17 |
| TOTAL | 62 |



Photo 6 : Retailers buying from women producers in the Kouto market

4.2.5. The impact of the marketing of local food products on the working conditions of producers

Food production enables producers to finance themselves. In fact, the data in Table 8 shows that producers spend 764.27 € on maize production, compared with 28.96 € on groundnuts. The income generated from the sale of these two products is 666.74 € for maize, a profit of 359.66 € and 795.73 € for groundnuts, a gain of 766.78. € These profits partly finance future plots in terms of the cost of renting farmland, fertiliser, beef hire and labour (Table 9).

Table 9 : Annual operating statement for a hectare of maize and groundnut fields from a farmer in Boyo

| Crops | Maize | Total | Peanut | Total |
|--------------------------------|---|-----------------|---|-----------------|
| Land rental cost | 6000 FCFA (9.14 €) | 9.14 € | 6000 FCFA (9.14 €) | 9.14 € |
| Nature of labor | 1 pair of oxen 3 maneuvers 2 rounds of support groups | - | 1 round of support group 2 maneuvers | - |
| Cost of labor | 44500 FCFA (67.82 €) | 67.82 € | 13000 FCFA (19.81 €) | 19.81 € |
| Agricultural inputs | NPK fertilizer (kg) Urea fertilizer (kg) Gramosson (liter) 4 boxes of herbicides | - | - | - |
| Cost of agricultural inputs | 151000 FCFA (230.12 €) | 230.12 € | - | - |
| Total expenses | - 201500 FCFA (764.27 €) | 764.27 € | 19000 FCFA (28.96 €) | 28.96 € |
| Volume of production sold (kg) | - | 2500 | - | 803.30 |
| Selling price of products | 437500 FCFA (666.74 €) | 666.74€ | 522145 FCFA (795.73 €) | 795.73 € |
| Earnings | 236000 FCFA (359.66 €) | 359.66€ | 503145 FCFA (766.78 €) | 766.78 € |

CONCLUSION

Food production requires men and women to serve as labor. This agricultural workforce presents diverse socio-demographic characteristics. Thus, male, unschooled, indigenous and adult producers engage in food production. This food production is firmly aimed at self-consumption. In addition, the marketing of food products improves the living conditions of the producer. Also, the production and sale of food products govern the maintenance and perpetuation of the socio-cultural values of the Senoufo farmer. Finally, food production is a factor in empowering women in rural areas and supporting miniature plots. This is why local elected officials; technical and financial partners and the State must pool their efforts in order to effectively support and sustainably support the agricultural world for the happiness of all.

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