



SOCIOECONOMIC EFFECTS OF INSECURITY ON PEPPER PRODUCERS AND COPING STRATEGIES IN THE DIFFA REGION OF NIGER

Social Science

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ABSTRACT

The Diffa's region has been particularly affected by insecurity, which has had repercussions on the activities of the population in general and on pepper producers in particular. The aim of this study is to study the socio-economic effects of insecurity on pepper producers and their adaptation strategies in the Diffa's region. Thus, one hundred and twenty (120) producers spread over the communes of Bosso, Diffa and Gueskerou, due to forty (40) per commune, were surveyed. Data were collected using an individual questionnaire. In order to compare information, semi-structured interviews were organized with producers to understand the effects of insecurity on pepper production in the Diffa's region and adaptation strategies. The results showed that with insecurity, only 55% of respondents manage to produce pepper; the others having abandoned the activity. Insecurity has, therefore, negatively influenced pepper production and to cope with it, producers have not only become farmers, breeders, traders and resourceful but also have increased the prices of a bag of dry pepper. Insecurity has indeed had negative effects on pepper producers.

KEYWORDS

Socio-economic effects, Insecurity, Producers, Pepper, Adaptation strategy

1-INTRODUCTION

Located in West Africa in the heart of the Sahel, Niger covers an area of 1,267,000 km² with an estimated population of more than 23.5 million inhabitants in 2021 (INS, 2022). It is a country where agriculture is one of the main economic activities. Irrigated crops only gained momentum in Niger after the major droughts of 1974 and 1984. Since then, the Niger government has continued to support the policy of irrigated crops throughout the country. These crops are grown around various water points such as boreholes, wells, sumps, ponds, lakes, rivers, basins, etc. (Oumarou, 2005). Also, in order to boost the agricultural sector and the economy of Niger, the development of irrigated crops is one of the credible and sustainable alternatives to enable the country to improve its food security and guarantee income to the populations. Irrigation is a main factor in agricultural development (M. A., 2021). Thus, in order to compensate cereal deficit, the populations have devoted themselves to the practice of market gardening, which is the case of the Diffa region with market garden crops such as peppers, tomatoes, melon, onions, peppers, potatoes, watermelon, sweet potato, etc.). Among the irrigated crops found in the African continent in general and in Niger particularly, there is pepper, which is an annual herbaceous plant (Segnou et al., 2012; Fernando et al., 2016; Eric et al., 2020).

Prior to 2014, pepper producing land was estimated at 8,000 ha for a dry pepper production of 10,000 to 11,000 tons and a monetary value of 7 to 10 billion CFA francs. Pepper is the head crop of the Komadougou valley with about 6,000 producers. Consequently, the production and marketing of peppers in the Diffa region have been directly impacted by the insecurity that is affecting the region (CRA, 2020) even though agriculture was one of the region's leading activities. Also, since the advent of Boko Haram, crop production has completely declined due to security measures taken by the government. As a result, many farmers have lost access to their fields located in areas where fighting between security forces and Boko Haram fighters occasionally takes place. Victims of such recurrent unfortunate situation in the region, producers have no other choices than develop adaptation strategies. This is the context in which this study "Socio-economic effect of insecurity on pepper producers and coping strategies in the Diffa region" was conducted. The general objective is to study the socioeconomic effects of insecurity on pepper producers and their coping strategies in the Diffa region.

2-MATERIAL AND METHODS

2.1. Presentation and choice of the field of study

This study was conducted in the Diffa region located in the extreme east of Niger and between 10° 30' and 15° 35' longitude East and 13° 04' and 18° 00' Latitude North (Figure 1). The climate is Sahelian in the south and Saharo-Sahelian in the north. It is characterized by a short wet season and a long dry season with variable rainfall from south to north of 400 mm to 20 mm. The average annual rainfall is 296mm. The average monthly maximum temperature ranges from 30.7°C to 42.3°C. The Diffa Region is essentially agro-pastoral in nature. Cereal production in Diffa is currently based on rainfall and irrigated cropping systems. However, the region has enormous potentials in terms of irrigated crops and flood recession which contribute to the reduction of the deficits observed in the rainy season. This field of study was chosen because of: i) the boom in pepper production before the insecurity and ii) the extent of the insecurity prevailing there.

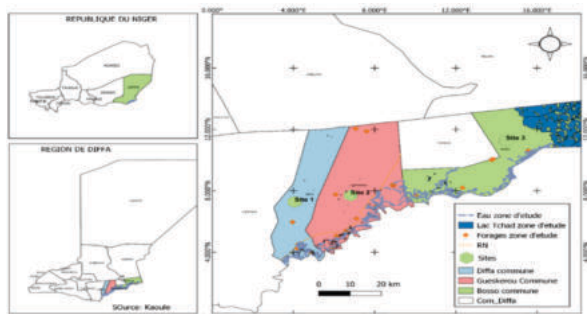


Figure 1: Location of the study area

2.2. Literature review

This step consisted not only in research and consultation, but also in the exploitation of documents relating to the theme in order to fully identify and understand the subject. At this level, emphasis is put on the collection of as much information as possible through previous work with relevant interest for this study. In addition, documentary research allows a good understanding of the subject and the study area: geographical location, socio-economic and biophysical aspects. The consultation concerned not only dissertations, project reports, administrative documents but also existing maps. Interviews with technical agents from state services, NGOs and projects were conducted.

2.3. Sampling and data collection

To carry out this study, three (3) municipalities in the Diffa region were selected. These are Bosso, Diffa and Gueskerou municipalities. A large number of great pepper producers are found there. A total of 120 producers were surveyed at the rate of forty (40) per municipality. The data were collected using an individual questionnaire. The latter made it possible to collect information on the characteristics of the respondents, the typology of producers, the socio-economic effects of insecurity on producers and the adaptation strategies of producers. In order to compare information, semi-structured interviews were organized with producers to understand the effects of insecurity on pepper production in the Diffa region and adaptation strategies.

2.4. Data processing

The data collected in the field were codified and processed using Excel and SPSS software. This made it possible to determine the frequency of the modalities for each variable studied.

3. RESULTS AND DISCUSSION

3.1 RESULTS

3.1.1 Socio-professional characteristics of respondents

Pepper production is an activity that involves both sexes (Figure 2A). Analysis of this figure shows that men dominate pepper production (88.3% of respondents). The age of the producers varies from 23 to 72 years old which gives an average of 46 years. The ages were categorized into three age groups: 20–40 as the young category, 40–60 as the older category, and 60 and above as the oldest (Figure 2B). Thus, the age structure of producers shows a predominance of people aged between 40 and 60 (56.7% of respondents) and young people represent 35%. The least represented age group is that of 60 years. As for the socio-professional activities of the respondents, they are given in Figure 2C. Analysis of this figure shows that agriculture is the most practiced activity (85% of respondents) followed by trade (10% of respondents). The least practiced activities are livestock (2.5% of respondents) and fishing (0.8% of respondents); civil servants representing 1.7% of respondents.

Finally, most of the producers have attended schools and only 3% of them have attended neither western nor Koranic schools. 58% of respondents attended Koranic school.

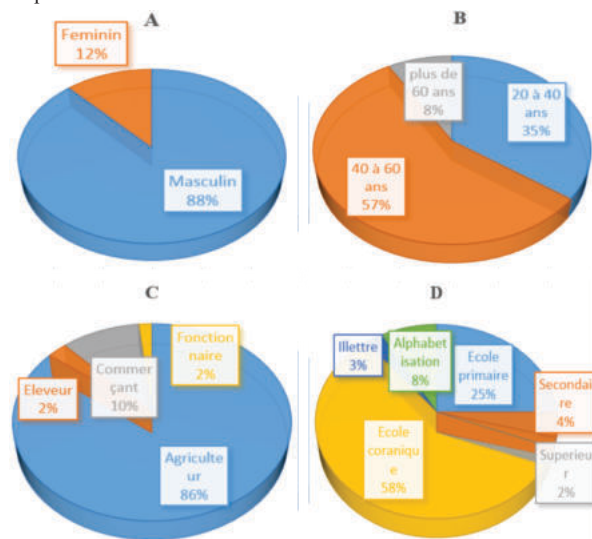


Figure 2: Socio-professional characteristics of respondents in A): according to gender; B): by age and C): by occupation and D): by level of education

3.1.2 Typology of producers

Pepper producers can be classified according to the area exploited, according to the tillage equipment and according to the mode of access to the land.

- **Typology of producers according to the area exploited**
- Pepper producers operate areas of different sizes from less than one (1) ha to more than three (3) ha. Thus, three (3) categories of producers have been identified: small producers who operate less than one hectare, medium producers who operate from one (1) to three (3) ha and large producers who operate more than three (3) ha. (3) ha. Figure 3 shows the representativeness of each category.

Thus, the class of medium producers is the most represented (65% of respondents), followed by small producers (20% of respondents).

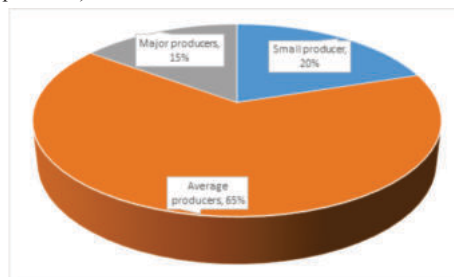


Figure 3: Representativeness of producers according to surface area exploited

Typology of producers according to tillage equipment

To carry out the production of pepper, the plowing equipment required is either the tractor, the plow, or the hoe. Plowing is done with these three (3) tools. Figure 4 shows that plow users are the most important (77.5% of respondents), followed by tractor users (20.8% of respondents) and only 1.7% of respondents use hoes.

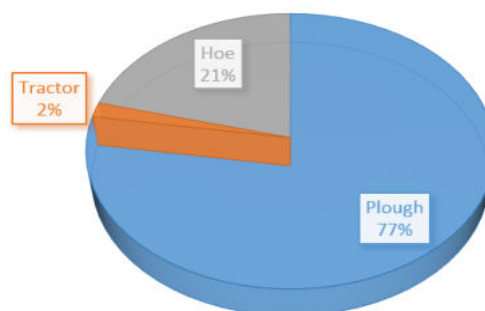


Figure 4: Representativeness of producers according to the tillage equipment used

Land access mode

Land is the primary factor of production in agrarian economies. Its mode of access can be through inheritance, purchase, donation, loan and sharecropping as shown in figure 5. According to this figure, inheritance and loan are the most predominant access modes on the site and represent respectively 43% and 42% of respondents. The acquisition of land by purchase represents 12% of respondents.

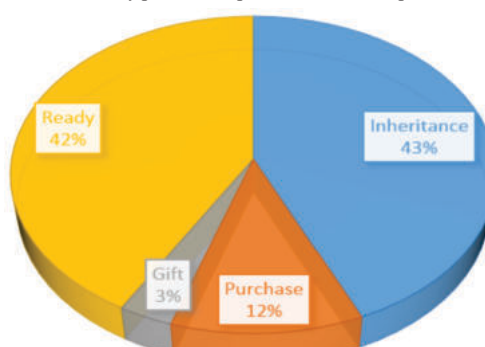


Figure 5: Representativeness of the mode of access to land

3.1.3 Socio-economic effects of insecurity on pepper producers

All the respondents interviewed (120 persons) were pepper producers before the outbreak of the Boko Haram insurgency. With the new insecurity context, only sixty six (66) producers (55% of respondents) manage to produce peppers; the others having abandoned the activity. Insecurity has therefore negatively influenced pepper production. Figure 6 shows the variation in the quantity of dry pepper produced (in a 17 kg-bag). The analysis of this figure shows that the more the quantity of dry pepper decreases, the more the number of producers increases with insecurity. Indeed, with insecurity, more than 86% of respondents produce less than 100 bags per year. On the other hand, before the insecurity, the number of those who produce at least 100

bags of dry pepper per year is the most important and represents more than 84% of the respondents and even better; more than 55% produce at least 200 bags of dry pepper.

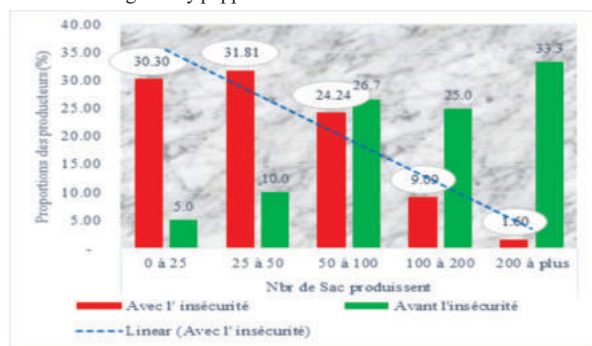


Figure 6: Representation of the effect of insecurity on the quantity of production

3.1.4 Coping strategies of pepper producers in insecurity context

Facing insecurity challenges, pepper Producers have developed coping strategies in order to be more resilient. Among these populations, 45% of respondents have lost their main activity which is pepper production, and 5% have witnessed a decrease of their activity. To cope with it, the majority of these producers have become farmers, breeders, traders and other petty traders. Figure 7 shows the retraining proportions of respondents. Thus, with insecurity, 41% of respondents engage in trade, 20% of respondents in agriculture, 13% have become livestock breeders and 11% manage to survive. On the other hand, 15% of respondents do not do any activity.

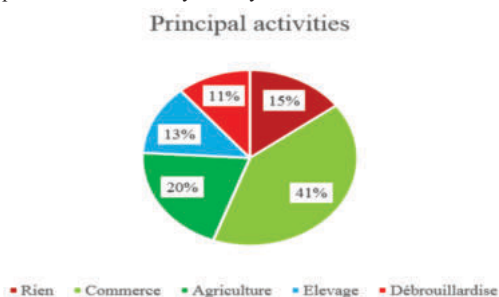


Figure 7: Representativeness of respondents' adaptation activities

The price of dried pepper packaged in 17kg-bags rise with insecurity (Table 1). Indeed, to cope with difficult living conditions, producers are increasing the price of the sack of dried pepper. The analysis of Table 1 shows the rise of the price of dried pepper prices with the insecurity context. In 2015 before the crisis, the price of the sack was 18,000 FCFA. In 2021, the price soared to 33,500 FCFA, an increase of 86% in six (6) years.

Table 1: Evolution of pepper prices according to the years of insecurity

Year	Price per sack of dried pepper
2015	18.000 FCFA
2016	25.000FCFA
2017	30.000FCFA
2018	31.000FCFA
2019	31.500FCFA
2020	32.000CFA
2021	33.500FCFA

3.2 DISCUSSION

Socio-economic characteristics of pepper producers

Pepper production is largely dominated by men who represent 88% of respondents. Several studies support these results. This would be explained by the fact that the fields are exploited by men and only few women have the possibility of exploiting land for agricultural purposes (Rabo et al., 2021). Furthermore, pepper is a cash crop and, according to a study conducted by Rabo et al. (2022), gardening for commercial purpose involves both men and women. Thus, due to the advantages it provides, this activity is, according to Ndiaye et al., (2021), a supplementary activity which is more accessible even though the results of Tendeng et al., (2017) have shown that women are more

active in market gardening than men who devote themselves to arboriculture

Socio-economic effect of insecurity on producers

This study dealt with the effects of insecurity on socio-economic life of pepper producers in the Diffa region. Indeed, the results showed that insecurity had negative effects on pepper producers. Before the insecurity, pepper production was very important and could exceed two hundred (200) bags of dry pepper. However, with the insecurity, more than half of the respondents only manage to produce, at most, fifty (50) bags each. However, pepper production is an important source of foreign currency that could improve the purchasing power and standard of living of producers (Saley et al., 2023). The pepper provides substantial income to producers and according to several authors (Finger et al., 2012; Ulhoa et al., 2014; Rêgo et al. 2015) its agro-industry also has great socio-economic importance, as it encompasses the farming as well as small, medium and even multinational family industries. Moreover, through the sale of cash crops, the population earn more income. The quantities sold vary from a producer to another and from crop to crop. The most profitable speculations are eggplant and to a lesser extent melon, pumpkin, watermelon, cassava, onion and pepper (Rabo et al., 2022). According to the same study, these crops can, in fact, provide up to 500,000 FCFA/ha/cycle. Cash crop not only allows producers ensure their food security but also strengthen social relations through donations. It therefore occupies a significant place in agricultural activities, due to the significant monetary income it provides to the populations (Ndiaye et al., 2021). Despite these multiple socioeconomic benefits that pepper production provides to producers, the results of this study showed that insecurity has negative effects on the lives of producers. These effects are so negative that 45% of respondents felt forced to give up their activity of pepper production. Also, with the insecurity, more than 86% of respondents produced less than 100 bags per year, even though before, those who produce at least 100 bags of dry pepper per year represent more than 84% of the surveyed and even better, more than 55% produce at least 200 bags of dry pepper. To cope with this deficit, producers have adopted adaptation strategies.

Insecurity and Adaptation strategy of pepper producers

Pepper producers having been forced to abandon their activity have become traders, farmers and breeders. Some had no fixed activities and manage to find their way out. The results of this study are in line with those of Mulumeoderhwa et al. (2020) who reported that the coping strategies most used by households to deal with the problems of food shortages and livelihoods are, among other things, the sale of productive assets, particularly livestock and agricultural output. The results of this study confirm those of Larbi and Widad (2015) because, according to these authors, the use of livestock and polyculture is also one of the strategies used by farmers to improve their income and sometimes to ensure food security. Farmers devote themselves in particular to the cultivation of cereals and livestock, which constitutes a family treasury. Another way of adaptation explored by producers is based on the development of new agricultural activities in an attempt to spread the risks and/or adapt to new production conditions: introduction of new crops, establishment of food crops by certain breeders, practice of livestock farming by farmers, development of cash crops and small size livestock raising, and processing of products (Jean Bosco and Yvette; 2016). In addition, in order to mitigate the effects of insecurity, the farmers often practice inflation of pepper prices. Indeed, the price of a bag of dried peppers rose from 18,000 FCFA in 2015 to 33,500 FCFA in 2021. Similar results were reported by Saley et al. (2023). Indeed, according to these authors, the price of a sack of dried peppers on the markets of the Diffa region varies from one year to another depending on the sales period of the year, but also on the availability of the product quantitatively and qualitatively. According to these authors, the price of a sack varies from 11,000 FCFA to 45,000 in the Diffa region. The highest average price was observed in Goudoumaria (32,000 to 40,000 FCFA) and the lowest in N'guigmi which is 11,000 to 44,000 FCFA in 2021. However, the results of this study showed that the availability of peppers on the market was negatively influenced by insecurity. The production of peppers, like that of other crops, is seriously impacted and in order to cope with this, producers are acting on cultural operations and techniques (Jean Bosco and Yvette, 2016; Sanou et al., 2018).

CONCLUSION

This study made it possible to not only establish a typology of pepper producers on the study field, but also to determine the socio-economic

effects of insecurity on pepper producers. In addition, the study also found coping strategies of producers with insecurity context. Thus, to better adapt themselves to their new conditions, producers have become farmers, breeders, traders or involved in other activities. Also, the producers speculated on the price of the sacks of dried pepper which increased from 18,000 FCFA in 2015 to 33,500 FCFA in 2021; an increase of 86% in six (6) years. Insecurity has therefore had a negative effect on pepper producers.

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