Open Access

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

Evaluation of the determinants of socio-economic and cultural performance among producers in the production of Penja pepper (*Peper nigrum*) under geographical indication in the Moungo Division, Littoral Region- Cameroon

Njeubong J.*[1], Tsi E. Angwafo.[2], Mvondo Ze A.D.[3], Tchamba M.[1], Bobo K. S.[1], Avana Tientcheu M.L.[1], Tsewoue M[1], Ndzedzeka R. [1], Boyah Julius.K.[4]

1- Department of Forestry, University of Dshang, Cameroon.
2- Department of Fundamental Sciences, University of Bamenda, Cameroon.
3- Department of Soil Science, University of Dshang, Cameroon
4- Research Unit of Applied Botany, University of Dshang, Cameroon.
* Corresponding author : njeubongjonas@yahoo.fr

Abstract— *This article seeks to analyse the effects of the adoption of the geographical indication on the determinants of socio-economic and cultural performance among Penja pepper producers's group under geographical indication (GR-IGPP) Moungo Division in Cameroon. 176 producers who operate in 4 pepper production areas: Loum, Penja, Njombé, Bouba (Mombo) were asked about the data on socio-economic and cultural characteristics, the 13 characteristic elements of needs on which they spend income from pepper cultivation. These data were subjected to descriptive statistical analysis, with graphs using the SPSS 23 software. The mapping of the production basins was carried out as an illustration of the geographical characteristics. The results obtained indicate that the percentage of men (86%) who are involved in Penja Pepper cultivation is significantly higher than that of women (14%). The age of the producers ranged between 20 years and 70 years with 45.5% of them having at least a secondary level of education and 31.8%, Primary education. In households members varied but between 3 and 10 people was the most frequent. In the practice of agricultural activities, 46% of people had 10 to 20 years of experience while 8% had less than 5 years and 21% had more than 20 years of experience. Overall, their areas of interest are investment in agricultural activities (35%) and business (10%). Only 5.5% and 5% of producers were concerned about family education and health. Women invest little in farming (8.78%), and in business 0.85%. Involvement in socio-cultural activities, construction and provision of water and electricity for households were not different from other activities. Majority of the producers were men with 39.9% of them within the active age group of 41-50 years. About 71.6% practiced professional pepper cultivation with a reseasonable proportion of income reinvested into the farms. The pepper producers must focus on the aspects of promoting culture, membership of cooperatives and CIGs that guarantee social cohesion in order to increase the chances of sustainability of this culture.*

Keywords— ***Geographical indication, Pepper, Penja, Socio-economic performance.***

I. INTRODUCTION

In Cameroon, the government has encouraged rural operators to practice second-generation agriculture as part of the Ebolowa agropastoral show [1]. It advocates the introduction of innovations in agricultural practices [2] in order to revolutionize subsistence agriculture by directing it towards more productive and competitive agriculture[3]. But financial difficulties, low added value and the lack of professional organization of sectors hinder access to innovations for small producers forced to practice subsistence food agriculture [4]. This situation has an impact on solving the problems inherent in food

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

security, increasing the income of small producers for the fight against poverty [5].

In the Moungo Division, the equatorial climate and the fertility of its soil allow the practice of several crops: corn, bananas, various fruits, coffee, cocoa, pepper [6]. Pepper cultivation has experienced a period of latency there, and resumed its expansion in 1990, with a growing number of operators grouped within the GR-IGPP, succeeding in exporting small quantities of pepper to Europe and the USA [1]. The marketing of pepper is a solution to improving food security and rural exodus [7]. Indeed, the income from the sale of pepper would help the producer diversify his diet by buying other foods [8]. This income can also help them to reinvest more in their operations or diversify their activities that provide jobs for young people [9].

The enthusiasm for the cultivation of pepper under geographical indication is due to the ever-increasing demand on both the national and international markets where consumers, in order to preserve their health, prefer quality products derived from traditional practices to standard products [10]. But pepper cultivation is done in an anarchic way, by adventurous farmers, elderly, farmers without knowledge of farming techniques, financial means to buy inputs and equipment, they operate on small areas of land, and are confronted with the reoccurences of diseases due to microbes and pests that attack plants, coupled with the harmful effects of climate change [11]. It is therefore urgent to consider the effects of the geographical indication as a catalyst for the determinants of the socio-economic and cultural performance of pepper cultivation, which represents a source of income for stakeholders and even for the transformation of the rural environment where 55% of poor households live [12].

How does the GI influence the socio-economic and cultural performance of Penja pepper cultivation in the production sectors of the Moungo Division? This article aims to assess the determinants of socio-economic and cultural performance among producers of pepper under geographical indication in the Moungo Division. It is part of the framework for producing data that can guide decisions to achieve the sustainable development objectives that make Cameroon an emerging country by 2035.

II. MATERIAL AND METHODOLOGY

PHYSICAL FRAMEWORK OF THE MOUNGO DIVISION

The Moungo Division, whose capital is N'kongsamba, is one of the 58 Division that make up Cameroon. It is located in the Littoral region, 135 km separates from Douala and Bafang. It is between 40°30' north latitude, 5° and 10° east longitude. To the north, it is bounded by the Haut-Nkam Division in the west region, to the south by Wouri Division, to the east by Yabassi in the Nkam Division, and to the west by Tombel in the Meme Division. Its surface area is approximately 3700 km^2, is formed by multi-variety relief characterized by three main types of relief: the plains are made of very fertile volcanic massifs extending from Manjo to Wouri, which have favoured the creation of industrial plantations. The trays are spread throughout the Division. The mountain ranges that extend from Loum to the border with the west region are occupied by polyculture. This relief is favourable to the development of the pepper plant, which needs a slight inclination of the soil to avoid the stagnation of the water, which is a nest for pepper pests.

Open Access

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

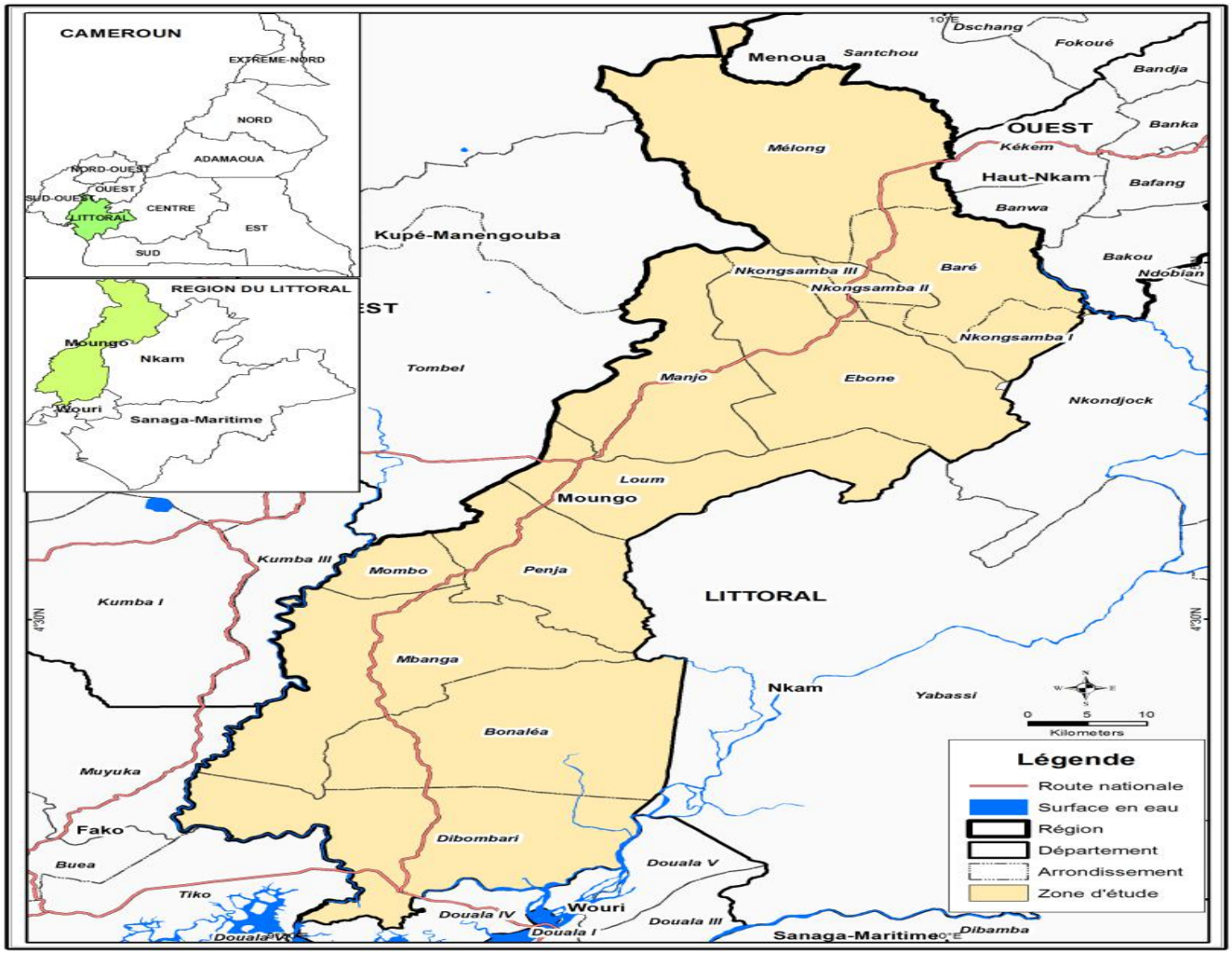

Fig.1: Map of Penja pepper production basins in the Moungo Division

Selection of the study sample:

The Penja's pepper producers who are members of GR-IGPP are the subject of our observation. They are installed in 4 production basins of the Moungo Division: Loum, Penja, Njombé, Bouba (Mombo). The questionnaires on socio-economic characteristics and socio-economic and cultural performance determinants were administered individually to the 176 producers identified on the basis of a list that GR-IGPP delegates made available to us during the exploratory survey.

Choice of variables

Socio-economic and cultural performance refers to the level of satisfaction that the producer obtains from the use of the income he or she derives from the cultivation of Penja pepper. As part of this study, we identified, after sampling, 13 characteristic elements of the needs on which the producer can spend his income. The areas of intervention are varied and include: investment in operations, education, health, leisure, food security, electricity, cooperatives, cultural promotion associations, water, business, housing construction, savings, GICs. Considering that a response to one of these elements corresponds to a share of income in FCFA used, we can distinguish two types of independent variables: quantitative independent variables, qualitative independent variables. A variable is significant if it is the subject of the producer's choice, not significant if it is not.

Quantitative independent variables

- Investment in the farm, refers to the portion of fcfa money that the producer spends to finance the activities of his/her farm in the hope of benefiting from interesting income that can help: purchase of inputs, labour payments, equipment and expansion of crop areas.
- Education, refers to the share of money in fcfa that the producer spends to pay for the children's schooling (payment of school fees and school supplies). The education of children is a

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

guarantee for the adoption of innovations in the future, and therefore the sustainability of exploitation.

- Health, refers to the amount of money in fcfa that the producer spends on health care and other family members in the event of illness.
- Leisure, refers to the share of money in fcfa that the producer spends to ensure his entertainment: vacation, buying a phone, clothes, car, bicycle, socialising, etc.
- Food security, refers to the amount of money in fcfa that the producer spends on food that he does not produce in order to vary his diet: meat, fish, oil, etc.
- Electricity, refers to the share of fcfa money that the producer spends on the payment of family electricity consumption (power supply for a television set, iron, etc.), other types of activities.
- Cooperative, refers to the portion of fcfa money that the producer spends on paying membership fees to an agricultural producers' cooperative.
- Cultural Promotion Association, refers to the amount of money that the producer spends on promoting Penja pepper cultural values: organization of seminars, conferences, trade fairs, etc.
- Water, refers to the share of money in fcfa that the producer spends on paying the water consumption bill in the household, other types of activities.
- Business, refers to the part of money in fcfa that the producer spends on diversifying his activities, providing employment and other sources of income.
- Housing construction, refers to the share of fcfa money that the producer spends to build, equip and maintain his habitat.
- Savings, refers to the portion of money in fcfa that the producer keeps in the form of « njangi », bank deposit. The money saved earns interest that contributes to increased income.
- GIC, refers to the share of fcfa money that the producer spends on paying membership fees to a joint initiative group of agricultural producers outside the GR-IGPP. It can be a factor for exchanging experiences and useful information for improving production and consequently increasing income.
- Age of producers, refers to the age at which the producer can start his activity. Indeed, it is with time that we acquire a good physical ability to support the work in the fields. It can also indicate at what age young people are interested in agriculture and according to the literature are more willing to use their income than older people.
- Household size, refers to the number of people living under the same roof and who are active in the farm's activities (labour). The literature indicates that large families struggle to fully meet their needs due to insufficient income.
- Producer experience, refers to the time in years that the producer has already spent in pepper production. Experience is crucial in the adoption of innovations that are likely to improve production and therefore influence income.

Qualitative independent variables

- The level of education refers to the level of education of the producer. It influences the ability to adopt innovation
- The gender of the producers refers to the sex of the producer. Since a farm can be owned by a man or a woman. Given men's physical fitness and the weight of tradition that confers on them the occupation of large areas of land, it is clear that men's income differs from that of women.
- Main occupation of producers, refers to the main activity of the producer, because there are people in pepper production sector who earn income from pepper cultivation as a secondary activity. Professional producers depend only on income that comes entirely from pepper production. The information collected is a basis for comparison in terms of quality of life.

Data analysis

The data collected was entered into Microsoft's Excel spreadsheet. The percentage frequencies of occurrence of the phenomena based on questionnaires completed by producers were calculated and presented in tabular or graphical form. Some variables were subjected to an analysis of variance (ANOVA) using the SPSS 23 software in order to determine significant differences between the means. A Chi^2 was used to analyze the significance of the results at 5%.

III. RESULTS

Distribution of respondents in the study area:

The table below shows the distribution of respondents in the 4 study areas.

The high percentages of respondents in Loum (60) and Penja (53) can be explained by the number of producers

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

in these areas and also by the dynamism of some delegates to mobilize the population for the development of their activities.

Table 1: Distribution of respondents in the study area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Penja	53	30.1	30.1	30.1
	Njombe	33	18.8	18.8	48.9
	Buba	30	17.0	17.0	65.9
	Loum	60	34.1	34.1	100.0
	Total	176	100.0	100.0	

Socio-economic characteristics of producers

Distribution of producers by gender

The diagram below shows the results obtained in the field, linked to the distribution of producers by gender. These results show that the majority of producers are male. Unlike most databases where women naturally dominate due to their availability and larger number, our database proves the opposite. These results show 14% of women who are interested in pepper cultivation, while 86% of men are producers. 13], obtain 72% and 28% respectively for men and women when they study the practice of market gardening in southern Togo. Similarly [14], indicate that 90.9% of men and 9.1% of women are cotton producers in Northeast Benin. This male domination is explained by the fact that in African society where women do not succeed, men are the heads of households who have control over the land as successors [15]. Another reason is based on the type of product considered. Women grow food crops to feed the family, while men practice commercial agriculture to raise money to reduce household poverty [16].

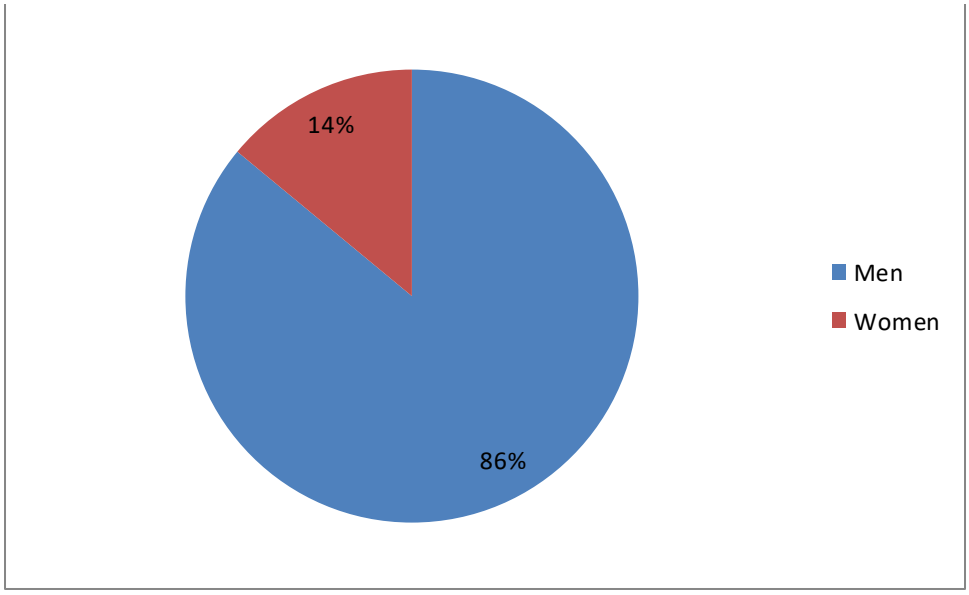

Fig.1: Distribution of producers by gender

Age of the pepper producer population

The age of the producers varies between 20 and 70 years old, the frequency of the highest producing population is 43 years. Less than 50% of producers are over 43 years old and the average age of the producer population is 43 years old. Table 2 summarizes the situation. A larger percentage of producers are in the 36-50 age group. People aged 51 and over believe that the production and maintenance of pepper is too expensive and technical, preferring to devote their resources to the production of what they already know. The most active people in the 36 to 50 age group who have the patience, strength and resources to start producing pepper.

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

Table 2: Age structures of the pepper producer population

Grouped Ages	Frequency	Percent	Valid Percent	Cumulative Percent
<25 years of age	5	2.8	2.8	2.8
26-30	19	10.8	10.8	13.6
31-35	19	10.8	10.8	24.4
36-40	23	13.1	13.1	37.5
41-45	35	19.9	19.9	57.4
46-50	30	17.0	17.0	74.4
51-55	13	7.4	7.4	81.8
56-60	17	9.7	9.7	91.5
61-65	10	5.7	5.7	97.2
66 years old >66 years old	5	2.8	2.8	100.0
Total Total	176	100.0	100.0	

Producers' level of education

The figure 2 shows that the population is highly educated. The Peak of 45.5%, and 31.8% indicate that the majority of producers have completed secondary and primary education, while 5.1% and 4.5% show that very few producers have completed vocational or primary training, and 13.1% have completed higher education. There is a close relationship between producers' level of education and the performance of their activities. More than 95% of producers have received formal education and are therefore able to easily assimilate or adopt agricultural innovations.

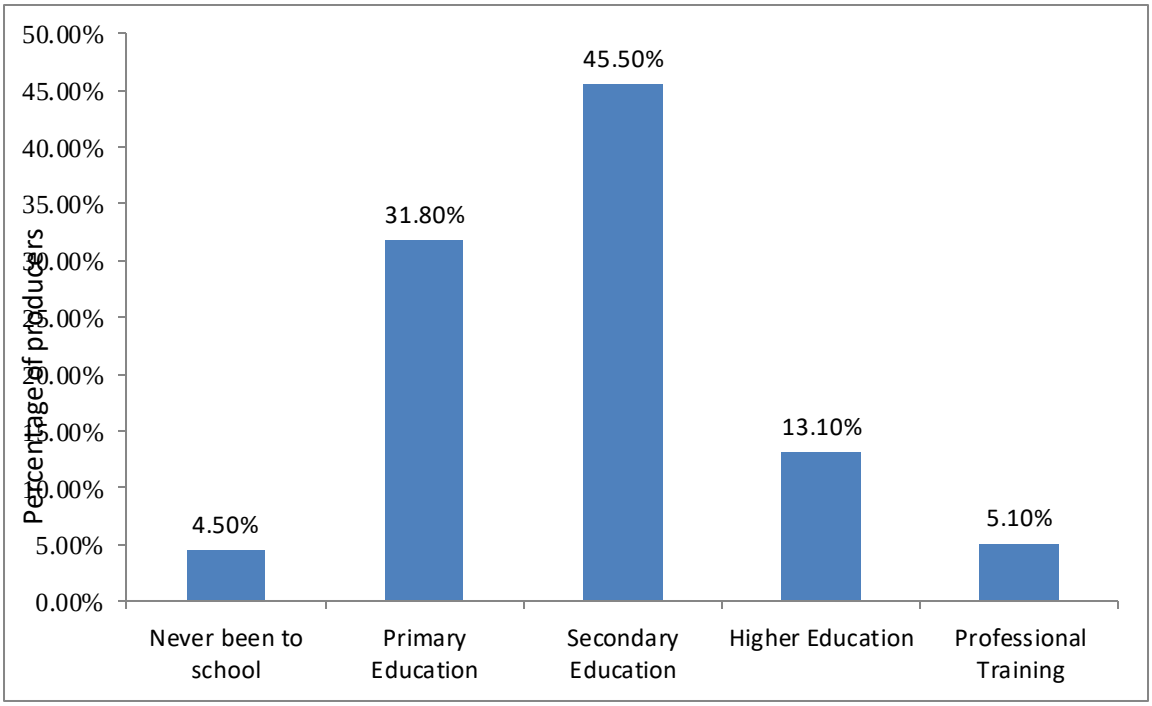

Fig.2: The level of education of pepper producers

Size of households

The family size varies from less than 03 to more than 10 people sharing the same roof. 17% of families house had 03 people, while 96.6% of families have 6 to 10 people. Larger families imply greater responsibility, but also a larger family workforce for the creation and maintenance of larger farms, although family labour alone cannot justify the existence of large farms. Maintaining a large family requires the use of significant income to meet the needs of its members.

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

Table 3: Household size

Number of persons in the household				
	Frequency	Percent	Valid Percent	Cumulative Percent
No answers	6	3.4	3.4	3.4
Less than 3	24	13.6	13.6	17.0
3 - 5	59	33.5	33.5	50.6
6 - 10	81	46.0	46.0	96.6
More than 10	6	3.4	3.4	100.0
Total Total	176	100.0	100.0	

Experience of pepper producers in production areas

The majority of producers have been in the area for 10 to 20 years. The number of years a producer has spent in production does not necessarily represent his or her experience in pepper production, although it may influence the time spent in production and his or her decision to start production. There is a significant statistical relationship between the producer's economic activity and the length of stay. Although this relationship is weak, it may be due to the period during which the economic value of culture, combined with its technical specificities for production, became known. Table 6 shows a population that has lived and settled in the study area for a long time. The time spent in the area also allowed the population to become familiar with farming practices, production techniques and thus the decision to start production. It has been mentioned above that the longevity of the stay does not necessarily have to translate into the longevity of the production, even if we note a very limited representation (08%) of residents under 05 years old.

Table 4: Installation of pepper producers in production sectors

How long have you been living here?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 5 years old	14	8.0	8.0	8.0
5 to 10 years	44	25.0	25.0	33.0
10 to 20 years	81	46.0	46.0	79.0
More than 20 years old	37	21.0	21.0	100.0
Total Total	176	100.0	100.0	

Main activity of producers

In rural areas, the population does not only participate in agricultural activities. Services are expanding rapidly to meet the ever-changing needs of the population in order to improve living standards. Since the national highway crossed this area, commercial activities have developed along the roads to meet the needs of passengers. Apart from a few occasional or permanent workers in the service industries, the majority of the producer population is engaged as professionals in agricultural activities (71.6%). About 28.4% of the population develop multiple secondary activities to supplement their income and improve their standard of living, as most have families for which they are responsible. These are traders (13.6%), civil servants (5.1%), technicians (4%), crafts and wood sector (1.7% each) and the service sector (2.3%).

Table 5: Main activities of producers

Main occupation of pepper Producers				
	Frequency	Percent	Valid Percent	Cumulative Percent
Agriculture	126	71.6	71.6	71.6
Craftsmanship	3	1.7	1.7	73.3
Trader	24	13.6	13.6	86.9
Civil servant	9	5.1	5.1	92.0

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

Technician	7	4.0	4.0	96.0
Services	4	2.3	2.3	98.3
Wood sector	3	1.7	1.7	100.0
Total Total	176	100.0	100.0	

Socio-economic and cultural performance and gender of the producer

Socio-economic and cultural performance differs according to the respondent's position in the household (Figure 4). The head of the household uses the pepper money mainly to reinvest in the farm (35.05%), for business (11.10%). Similarly, women use the money from the sale of pepper to invest in the farm (8.78%) but are not very involved in business (0.85%). Education (8.7%), health (6%), food security (0.4%) and savings (0.6%) are provided by men.

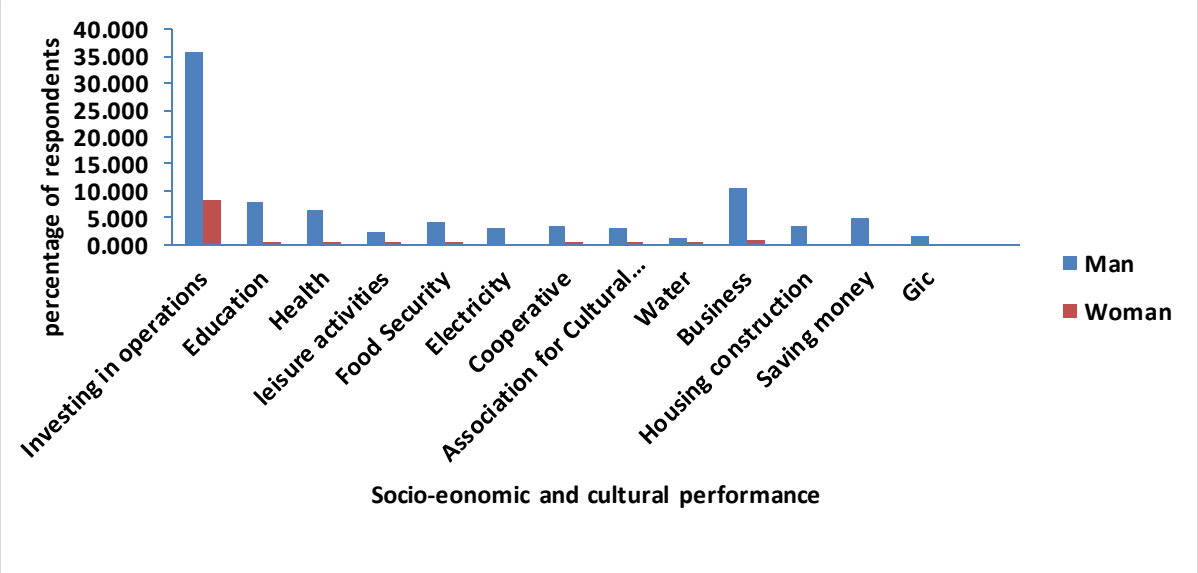

Fig.4: Socio-economic and cultural performance and gender of the producer

Socio-cultural performance and age of the producer

Socio-economic and cultural performance is influenced by the age of the farm manager. Young people aged 26-36 (14%) and 37-47 (20%) have attractive incomes to reinvest in their farms, but they save little money. The older ones invest little money (0.4%) in farms and are weakly involved in business (0.2%). There is a precarious situation in terms of very low incomes devoted to health, education, leisure, food security, access to water and electricity, social cohesion marked by a low interest in joining peasant organisations or associations with cultural characteristics. The Chi^2 test shows at P <0.0001, There is a highly significant difference between social performance and age of the respondent.

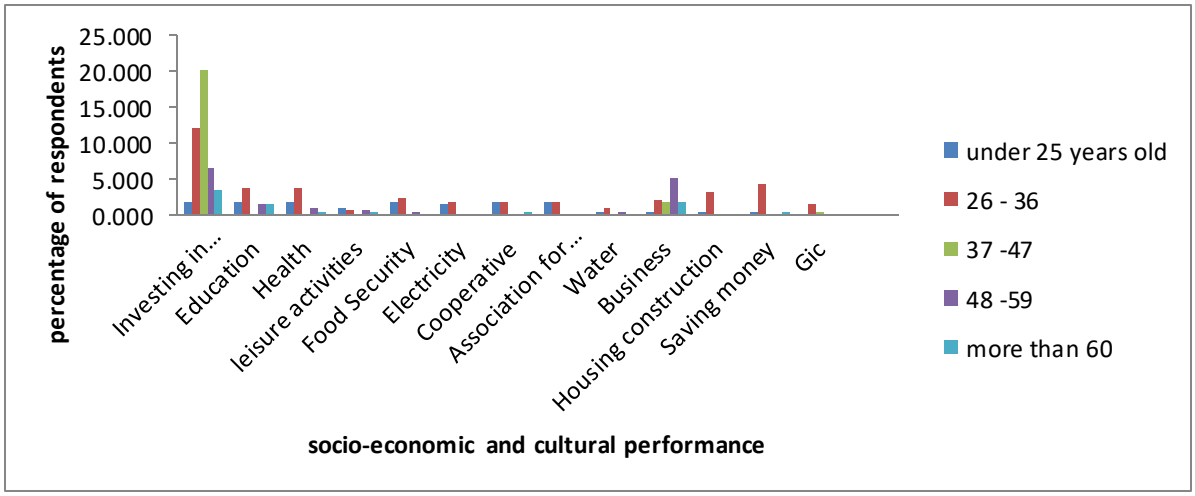

Fig.5: Socio-economic and cultural performance and age of the producer

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

Socio-economic and cultural performance and education level of the producer

The degree of income used differs with the level of education of the actors in this agricultural sector. The majority of actors who have secondary education (23%) or primary education (14.8%), use their income to invest more in farming and in doing business, and make efforts to improve their living conditions and environment better. On the other hand, those who have followed vocational training (0.4%), higher education (0.7%), illiterate (0.5%), probably because of their small numbers, have difficulty solving problems of health, education, food security, doing business or paying bills for water, electricity and decent housing.

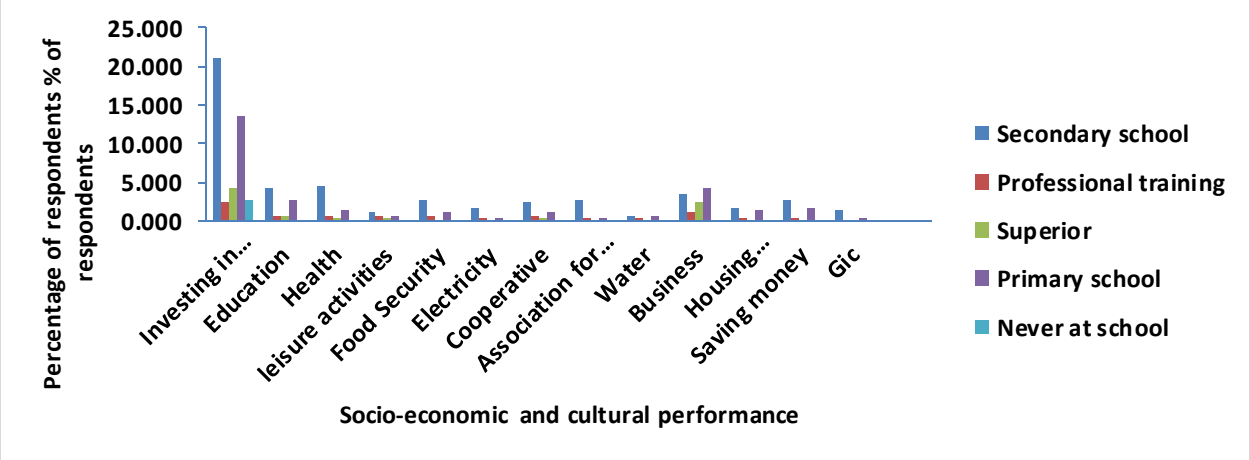

Fig.6: Socio-economic and cultural performance and education level of the producer

Socio-economic and cultural performance and the producer's main occupation

Professional farmers use a large part of their income to invest more in farming (28%), business (8%), education (6%), health (5%), savings (4%) respectively. Traders, transporters, technicians, civil servants, craftsmen and others, on the other hand, do not have a reasonable income to devote to solving problems related to education, health, leisure, food security, payment of water and electricity bills, housing construction, savings, membership of peasant organizations and cultural promotion associations.

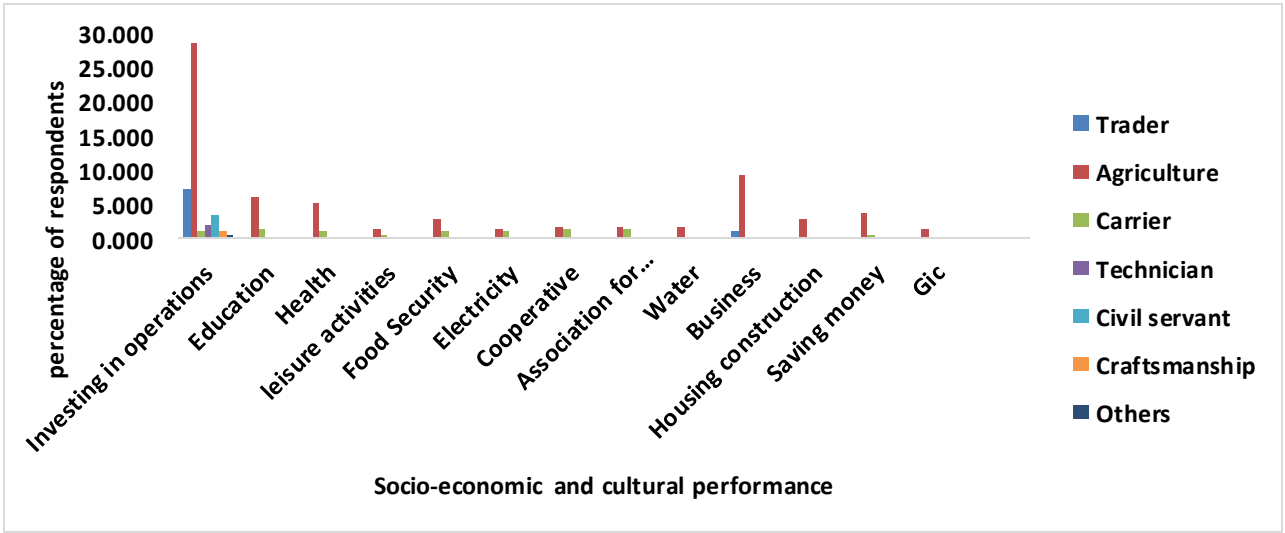

Fig.7: Socio-economic and cultural performance and the producer's main occupation

Socio-economic and cultural performance and number of people in households

The number of people in the household is significant in income consumption. In households of more than 10 people, producers struggle to properly use their income to

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

invest in the farm (1%). However, in households of 6 to 10 persons or less than 3 persons, the expenses are low and therefore the income is substantial and gives the actors the possibility to invest in the farm and do business (18% and 8.2% respectively), and to provide for other needs.

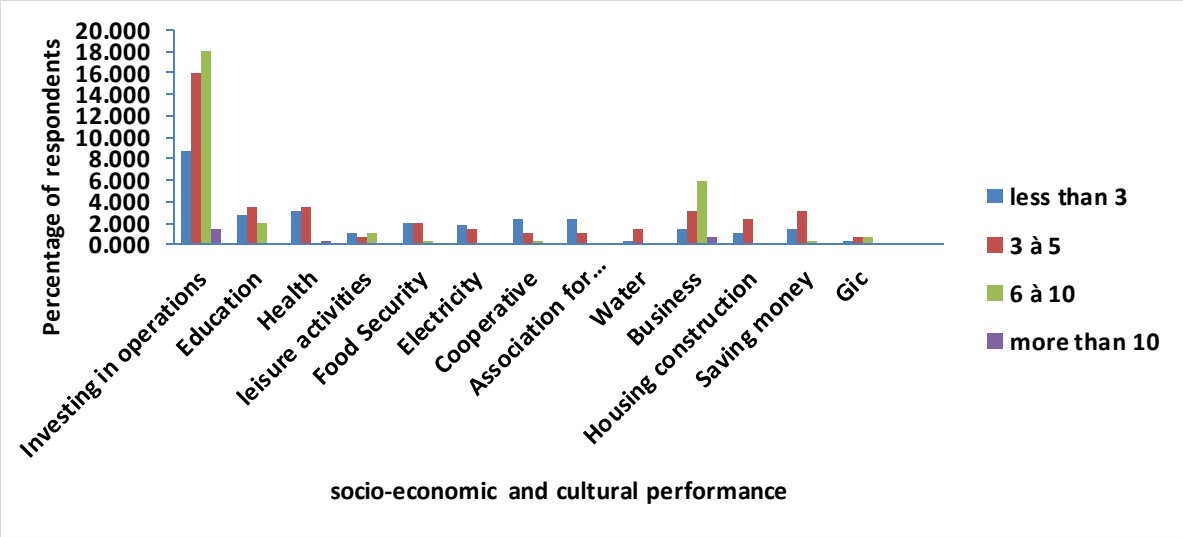

Fig.8: Socio-economic and cultural performance and number of people in the household

Socio-cultural performance and experience in the practice of pepper cultivation

Experience in the practice of pepper cultivation influences the socio-cultural performance of pepper producers. Less experienced people, i.e. between 5 and 10 at most, invest a lot of their income in farming and business (16%), while those with more than 20 years' experience invest little (2%).

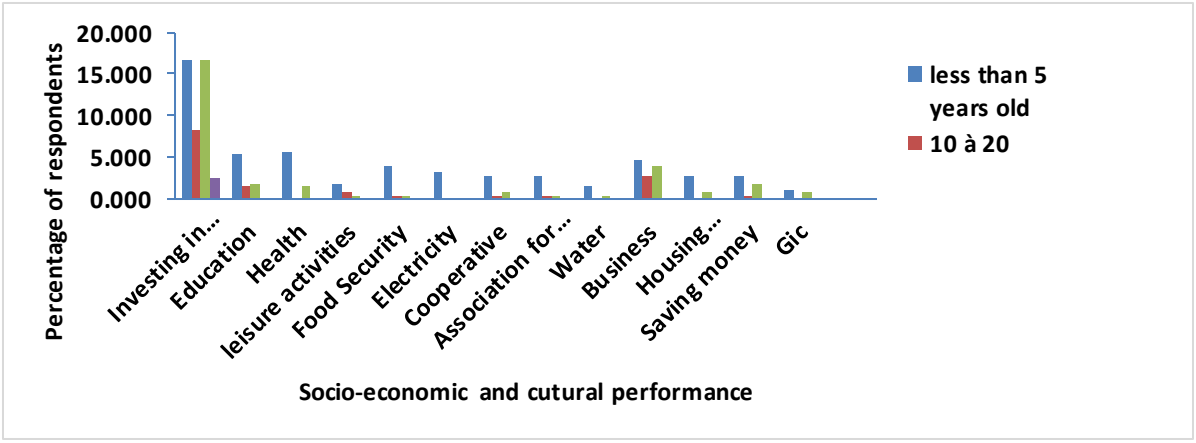

Fig.9: Socio-economic and cultural performance and producer experience

IV. DISCUSSION

Socio-economic and cultural performance and gender

The improvement of living conditions and environment (electricity, water, housing construction) and membership of farmers' organisations and associations for the promotion of cultural values are poorly taken into account in the budget of Penja pepper growers, who are mainly men (86%). They prefer to invest their income in their farms and other businesses to generate more income. Women showed willingness in improving the living conditions of the families but they are limited by their low income. The low representation of the woman (14%) is due to limited access to farmlands and thence low investments. The trend towards farm investment increases probably due to the unsatisfactory yield at the early age of the plantation. Producers continue to invest with the hope to obtain high productivity on the farms with time [17].

International Journal of Forest, Animal and Fisheries Research (IJFAF)
[Vol-3, Issue-4, Jul-Aug, 2019]
ISSN: 2456-8791
https://dx.doi.org/10.22161/ijfaf.3.4.5

Socio-economic performance and age of the producer

There is a significant difference between socio-economic and cultural performance and the age of the producer (The chi^2 test shows at P <0.0001). Young people (20%) over 35 years of age have more income to meet the majority of their needs, and therefore dominate those in the older age ranges (2%), due to the government policy aimed at encouraging young people to become interested in agricultural activities. Also the progressive decrease in physical strength among the elderly pushes them to take an interest in other things that keep them away from rural work.

Socio-economic and cultural performance and education level

Overall, we note a low interest in cooperatives and CIGs, participation in cultural promotion associations that can explain the lack of social cohesion between GR-IGPP producers and other producers who are members of different farmers' organizations, therefore there is no circulation of information, exchange of experience on the adoption of innovation despite the acceptable level of education of the actors of this culture [18]. Also the low level of education of some producers is a handicap for the adoption of innovations and therefore can justify the low interest in luxury [19].

Socio-economic and cultural performance and main activity

The fact that pepper cultivation is a secondary activity practiced for subsistence by opportunistic producers (28.4%), it contributes little to the increase in their income. [20], confirms this justification when it indicates that professional farmers have attractive incomes from agriculture compared to the low income obtained from the marketing of non-timber forest products collected or harvested in the forest by a few adventurers. This is explained by the fact that professional farmers (71.6%) spend most of their time in maintaining pepper stems, produce pepper under geographical indication that sells high when exported enabling them make high profits from it. From the profits they can acquire the assets they need.

Socio-economic and cultural performance and family size

Increase in pepper yield is dependent on the age of the plants and farm. The low yield explains the fact that despite the availability of labour, young pepper plants do not produce good yields. This limits them to produce high yield large and earn more money to help them raise their living standards. In many cases in West Africa, poor harvest reduces the incomes of large families and exposes them to poverty [21]. However, in households of 6 to 10 persons or less than 3 persons, the expenses are low and therefore the income is substantial and gives the actors the possibility to invest in the farm and do business (18% and 8.2% respectively), and to provide for other needs. On the other hand, the higher the number of people in a household (more than 10 people), the less income they make to cover their needs [22].

Socio-economic and cultural performance and experience

Less experienced people invest a lot in the operation. This can be explained by the fact that the maintenance of pepper plants at the beginning of production requires the use of money for the acquisition of adequate inputs and equipment in order to obtain better yields. From 4 to 10 years, the pepper plant is in its maximum production phase [23]. However, beyond 20 years, the pepper plant's yield decreases and requires a rejuvenation of the farms and a low percentage of investment despite experience (2%), thereby reducing the producer's power to intervene in meeting his needs (health, education, etc.).

V. CONCLUSION

The income from Penja pepper cultivation helps producers to intervene in areas as varied as the needs they seek to satisfy: investing in farming, education, health, leisure, food security, electricity, water, contributions to cooperatives and CIG, cultural promotion associations, business, housing construction, savings. These domains are significantly or not significantly influenced by gender, age, education level, main occupation, family size, producer experience. Majority (86%) of the pepper farmers are males. About 36.9% of pepper farmers fall within the active age group of 41-50, with about 71.6% of them engaged into professionnal cultivation of precious plant. About 35% of these farmers reinvest their income into the farm to increase production and /or invest in other businesses in order to make more profits and improve their living conditions. Hence, innovative agricultural practices have led to providing decent living environment through the construction of houses and its provision of water and electricity amongst others.

Membership of associations promoting cultural value, which is a framework for bringing together stakeholders who can promote the use of pepper and their traditional skills is encouraged. This will enable cultural values to be passed on to future generations through the organization of cultural days, conferences and seminars to demonstrate the specificity of this pepper species. These activities will not only make Moungo Division a privileged destination for tourists but also expose the rare Penja pepper even internationally and increase income for the producers.

Membership in a cooperative or CIG is encouraged for the producers because it may not only create jobs but will ensure the professionalization of her members. Hence, by joining a cooperative or CIG, members of the group representing the geographical indication of Penja pepper comes out to become the centre for the exchange of experience, information and training necessary for social cohesion on which the sustainability of pepper cultivation depends.

REFERENCES

[1] Achancho, V. (2013). Revue et analyse des stratégies nationales d'investissements et des politiques agricoles en Afrique du Centre : Cas du Cameroun. *2013. Reconstruire le potentiel alimentaire de l'Afrique de l'Ouest.*

[2] Bérard, L., Cegarra, M., Djama, M., Louafi, S., Marchenay, P., Roussel, B., & Verdeaux, F. (2005). Savoirs et savoir-faire naturalistes locaux : l'originalité française. *VertigO-la revue électronique en sciences de l'environnement*, *6*(1).

[3] Haderbache, L., & Haddad, S. (2016). *Impact du secteur agricole sur la croissance economique en algerie* (Doctoral dissertation, Université de bejaia).

[4] Gafsi, M. (2007). *Exploitations agricoles familiales en Afrique de l'Ouest et du Centre : enjeux, caractéristiques et éléments de gestion*. Editions Quae.

[5] ILLY, L., BELEM, J., Sangaré, N., & Kaboré, M. (2007). Contribution des cultures de saison sèche à la réduction de la pauvreté et à l'amélioration de la sécurité alimentaire. *Rapport d'étude du Centre d'Analyse des Politiques Economiques et Sociales, Ouagadougou, Burkina Faso*.

[6] Belletti, G., Chabrol, D.& Spinsanti, G.(2016). Echapper au piège «qualité-exclusion » dans les indications géographiques : réflexions sur le cas du poivre de Penja. Cahiers agricultures, 25(5),55002

[7] Delcourt, L. (2013). Envers et dessous du «miracle» agricole brésilien. *Une étude du Centre tricontinental, CETRI*.

[8] Landon-Lane, C. (2004). *Jardins Comme Moyens D'existence : Diversification Du Revenu Familial Rural Grace Aux Jardins Familiaux* (Vol. 2). Food & Agriculture Org.

[9] Caron, P., & Sabourin, É. (2001). *Paysans du sertão : mutations des agricultures familiales dans le Nordeste du Brésil*. Editions Quae.

[10] Tagbata, W. D. (2006). *Valorisation par le consommateur de la dimension éthique des produits : cas des produits issus de l'agriculture biologique et du commerce équitable* (Doctoral dissertation, ENSAM).

[11] Hervé, T. (2019). Rait Analysis of Penja Pepper (Peper nigrum L.) Production Determinants in the Mungo Division, Littoral Region, Cameroon. *EPH-International Journal of Agriculture and Environmental Research (ISSN: 2208-2158)*, *5*(2), 33-43.

[12] du Cameroun, G. (2009). Document de Stratégie pour la Croissance et l'Emploi. *Éducation et formation professionnelle*.

[13] Mondedji, A. D., Nyamador, W. S., Amevoin, K., Adéoti, R., Abbey, G. A., Ketoh, G. K., & Glitho, I. A. (2015). Analyse de quelques aspects du système de production légumière et perception des producteurs de l'utilisation d'extraits botaniques dans la gestion des insectes ravageurs des cultures maraichères au Sud du Togo. *International Journal of Biological and Chemical Sciences*, *9*(1), 98-107.

[14] Dossa, K. F., & Miassi, E. (2018). Facteurs Socio-Economiques Influençant L'adoption de Coton Biologique au Nord-Est du Bénin: Cas de la Commune de Kandi. *IJPSAT*, *6*(2), 577-584.

[15] Maquet, J. (1967). La tenure des terres dans l'État rwanda traditionnel. *Cahiers d'Etudes africaines*, 624-636.

[16] Maurice, S. A. N. W. I. D. I., & Amadou, B. A. R. R. Y. (2010). Rapport de l'étude sur l'état des lieux du droit à l'alimentation au Burkina-Faso.

[17] Sossou, C. H. (2015). *Le financement de l'agriculture au Bénin : Stratégies de gestion et d'adaptation des exploitations agricoles* (Doctoral dissertation, Gembloux Agro-Bio Tech Université de Liège, Gembloux, Belgique).

[18] Kahn, R (2010). La dimension culturelle du développement territorial. Revue d'Economie Régionale & Urbaine, octobre (4), 625-650. Doi : 10.3917/reru.104.0625.

[19] Sale, A., Folefack, D. P., Obwoyere, G. O., Wati, N. L., Lendzemo, W. V., & Wakponou, A. (2014). Changements climatiques et déterminants d'adoption de la fumure organique dans la région semi-aride de Kibwezi au Kenya. *International Journal of Biological and Chemical Sciences*, *8*(2), 680-694.

[20] Lescuyer, G. (2010). Importance économique des produits forestiers non ligneux dans quelques villages du Sud-Cameroun. *BOIS & FORETS DES TROPIQUES*, *304*(304), 15-24.

[21] Toulmin, C., & Guèye, B. (2003). Transformations de l'agriculture ouest-africaine et rôle des exploitations familiales. *Dossier IIED*, (123).

[22] Djouara, H., Bélières, J. F., & Kebe Doumbia, D. (2006). Les exploitations agricoles familiales de la zone cotonnière du Mali face à la baisse des prix du coton-graine. *Cahiers Agricultures*, *15*(1), 64-71.

[23] Feintrenie, L., Jacqmin, C., & Penot, É. (2006). L'exploitation agricole familiale au Cambodge depuis l'indépendance : le cas de la province de Kompong Cham. *Cahiers Agricultures*, *15*(6), 570-577.

Abbreviation

- GR-IGPP: Representative grouping - Geographical indication of Penja pepper
- IG : Geographical Indication
- CIG: Common Initiative Group