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Full Length Research

Socio technical characteristics of beekeeping and honey production in Cameroon

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ABSTRACT: From January to December 2022, a study was carried out in Cameroon to have a global overview of apiculture in the aspect of production, technics and finances. In order to achieve these objectives, a sample of 113 beekeepers was surveyed within the country and databases of the livestock, Agriculture Ministries and National Statistics Institute were consulted. The results showed that beekeeping in Cameroon is mainly done by men (76%), and that beekeepers' ages range from 15 to over 60 years old and are either pure beekeepers, practising beekeeping as the only activity or partial beekeepers whose activity is secondary to another. Three types of hives are used by beekeepers with a significant difference between the areas ($p<0.0001$) namely conical made of straw in the Sudano-Guinean area, trapezoidal made of wood for the Kenyan Top Bar Hive (KTBH) and parallelepipedal for the Langstroth hives and its variants in the bimodal forest and western highlands areas. An average number of 36.18±20.23 hives per beekeeper was obtained, with an annual average production of 14.56±11.68 litres per hive. Sales revenue per beekeeper obtained was 583,015.27 ± 72,369.52 FCFA (1,166.03 ±144.74 USD) with a significant difference ($p<0.001$) between the areas. This study has given an insight into Cameroonian apiculture and the overall results suggest that the country has one of the greatest potential in the continent with an increase in production over the last five years.

Keywords: Beekeeping, Cameroon, characteristics.

INTRODUCTION

Cameroon is a country in the central Africa region that is characterized by a great diversity of ecosystems with up to five (5) agroecological zones (Ngom *et al*., 2014). These areas contribute to each one in the different agricultural and crop productions, with beekeeping as a common activity practised in all these areas.

Although some features of beekeeping have been studied especially in the Adamawa Region (Ingram and Njikeu, 2011; Meucthieye *et al*., 2014) and in the western highlands (Tchoumboué *et al*., 2007; Mbogning *et al*., 2011), very little is known about other regions. Moreover, the scarcity and data age due to the gap between the studies gives a lack of a global view of the activity in the country.

Despite all these studies, the practice of apiculture was not reported either in the southern part of the country, technical characteristics were still unknown and no general study for the comparison of the main productive areas was done.

The objective of this study was therefore to have an

overall situation of beekeeping in Cameroon, to describe the sociotechnical characteristics of beekeeping in the different areas, and to have the evolution of the production for the last five years in order to make a prospect of the activity in the years to come.

MATERIAL AND METHODS

Study area and design

The study was conducted in all the regions of the country, and data were collected from three main sources. Firstly, the databases of the Ministry of Livestock, Fisheries and Animal Husbandry (MINEPIA) of the Ministry of Agriculture and Rural Development (MINADER) and of the National Institute of Statistics (NIS) were consulted to have the information on the national honey production during the five last years. Secondly, in order to have the regional information and to confirm the overall national information, thus reducing the discrepancies, the regional databases of MINEPIA and MINADER were consulted in order to crosscheck the information on the national honey production. These local agencies were also consulted to obtain information on the beekeepers of each area. Finally, fieldwork was carried out at the different beekeeping stations, a questionnaire was used to collect sociocultural, technical and financial information.

Sampling and data analysis

The study was conducted from January to December 2022, and the determination of the minimum sample size (N) of beekeepers to investigate was estimated through the Thrusfield (2005) formula. Since there was no previous study done in the whole country, the expected prevalence was set at 10% considering that less than 10% of the population are beekeepers (INS, 2019) with a 95% confidence interval and a precision of 5%.

$$N = \frac{Z^2 P(1-P)}{d^2}$$

Where: N = sample size, Z = Critical value of the normal distribution at the required confidence level, (1,96), p = Sample proportion (0,1), and d = Margin of error or precision (5%)

The size obtained was then allocated proportionally to the production of each region so that the number of beekeepers would reflect the honey weight production per region, while the selection of beekeepers itself was done randomly. A questionnaire of fifty-three questions was then administered to the beekeepers, and information concerning the sociocultural characteristics, beekeeping practices, productivity and finances were collected and analysed through the Microsoft 2022 software. The Khi square test was done to test the dependency between these variables and the different areas and the results were expressed in the form of mean ± standard deviation, at the level of significance of 5%.

RESULTS

Study area and honey productivity

A total of 131 beekeepers from all the regions in the different areas were surveyed as shown in Table 1, although two regions (far north and Southwest) were not studied.

Honey productivity and characteristics

Concerning honey productivity, from 2018 to 2022, Cameroon has produced cumulatively 34,203.32 tons of honey, going from 5,276.20 in 2018 to 7,813.12 tons in 2022, with an increase of 67.53% over the five-year period with an average of 13.51% per year as presented in Table 2.

However, the increase in honey production has been hampered by many factors like the security crisis in the western highland area (West, south-west and north-west), where production has dropped from 2,401.7 tons in 2018 to 1,375.36 tons in 2022, while in the other areas, the honey production has almost doubled as shown in Table 2.

Sociocultural characteristics of beekeepers

Concerning the sociological characteristics of beekeepers presented in Table 3, the activity is mainly practised by men (76±23%) without a significant difference between the areas, with an age ranging from fifteen to over sixty years old, the majority, 63±11.62% aged from 30 to 60 years old indiscriminately of the religion with an average experience as a beekeeper of 6.28±3.84 years old.

Moreover, the professional status shows two categories of beekeepers, true ones almost a quarter of beekeepers who are relying only on this activity for their revenues, while the second category of beekeepers 60±18.77% practice other activities.

Technical characteristics of the activity

Concerning the technical characteristics (Table 4), land ownership by beekeepers was very low with only 8% practicing their activity in their own land. The average number of beehives per beekeeper was estimated to be

Table 1. Allocation of the sample size according to the agroecological zones.

Agro ecological areas	Regions	Sample size allocated N (%)
Sudano-guinean	Adamawa-North	26 (19.85%)
Bimodal Forest	Centre-South-East-Littoral	84 (64.12%)
Western highlands	West, North west	21 (16.03)
Total		131 (100)

Table 2. Evolution of honey production in Cameroon from 2018 to 2022.

Agro-ecological areas	Regions	2018	2019	2020	2021	2022
Bimodal forest area	Centre	2210	4522	3881	3682	4123,84
	Sud	1,7	6	8	12	13,44
	Est	4,2	16	4	8	8,96
Monomodal forest area	Littoral	6,3	4	5	10	11,2
	Sud-Ouest	14,3	14	8	6	6,72
Western highlands	Ouest	126,4	136	84	99	110,88
	Nord-Ouest	2261	1519	1079	1123	1257,76
Soudanoguinean area	Adamaoua	648,8	987	1856	2019	2261,28
Soudano-sahelian area	Nord	2	2	7	15	16,8
	Extrême-Nord	1,5	0	0	2	2,24
Total		5276,2	7206	6932	6976	7813,12

INS, 2019; MINEPIA-DEPCS, 2020.

36.18±20.23, with the majority 111 (85%) of the beekeepers having at least 40 beehives with two to four harvests per year. The type of beehives was significantly different between the areas ($p<0.00001$), straw hives (9%) were used essentially in the Sudano-Guinean agroecological zone, KTBH and Langstroth with their variants in the western highlands and bimodal forest areas with 37% of beekeepers using in their bee stations at least two types of beehives, essentially KTBH and Langstroth.

The extraction of honey from honeycombs was described by the majority (74%) of beekeepers as traditional and consisted of grinding the honeycombs and filtering through decantation via a tissue or a sieve, with a yearly production per hive ranging from 6.67±4.62 to 20.67±18.58 litres with an average of 14.56±11.68 litres.

Economical characteristics of beekeeping

Regarding the economic features of beekeeping (Table 5), the national average price of a beehive was estimated to be 16,259.54±6291.53 FCFA (32.52±12.58 USD) with a significant difference between the different areas.

Of the 131 apiaries, only 50 (38%) had at least one employee with a total of 66 employees. 29 (44%) employees are paid a monthly salary between 0 to 30,000 FCFA (60 USD) and 37 (56%) a salary from 30,000 to 60,000 CFA (60-120 USD), with the higher salaries observed in the bimodal forest area. The average national salary per month was estimated to be 31,818.18±21,213.20 FCFA (63.64±42.43 USD) with a significant difference between the areas ($p<0.001$). The source of the funding for the starting of the activity also differed significantly ($p<0.05$), with 92% coming from personal resources.

The revenue of the beekeepers comes from the selling of honey (100%) and other products such as wax, or even pollen either directly or indirectly to the final consumer, the main product being honey, from which they make an annual sales revenue of 583,015.27±72,369.52 FCFA (1,166.03 ±144.74 USD) with a significant difference ($p<0.001$) between the areas.

DISCUSSION

Honey productivity and characteristics

This study aimed to have a general view and understanding of honey production in order to have an insight into the future of the activity. Concerning the productivity of honey, 99.37% of all the national honey comes from three agro-ecological areas; bimodal forest area, Sudano-Guinean and the western highlands as found in previous studies (Niba and Ingram, 2008; Verina and Malal, 2010; Meutchieye *et al*., 2014). However, the

Table 3. Sociological characteristics of main beekeeping areas.

Variables		Bimodal forest	Western highlands	Sudanoguinean	Frequency (%)	Total	Mean	Standard deviation	Confidence interval	X^2	p-value
Sex	Men	60	20	20	76%	100	33.33	23.09	4.53	5.28	0.07
	Women	24	6	1	24%	31	10.33	12.10	4.26		
Age	[15-30[	12	4	4	15%	20	44.73	8.77	1.50	2.78	0.84
	[30-45[	30	8	4	32%	42					
	[45-60[	24	8	8	31%	40					
	[60-+[	18	6	5	22%	29					
Experience in the activity	]0-5]	36	10	6	40%	52	6.28	3.84	0.65	1.46	0.83
	]5-10]	6	2	2	8%	10					
	]10-+[	42	14	13	52%	69					
Religion	Christian	72	22	17	85%	111	37.00	30.41	5.66	0.29	0.99
	Muslim	6	2	2	8%	10	3.33	2.31	1.43		
	Other	6	2	2	8%	10	3.33	2.31	1.43		
Level of education	Primary	24	6	4	26%	34	11.33	11.02	3.70	15.92	0.003*
	Secondary	12	4	11	21%	27	9.00	4.36	1.64		
	Higher	48	16	6	53%	70	23.33	21.94	5.14		
Profession	None	24	6	2	24%	32	10.67	11.72	4.06	3.92	0.69
	Public worker	6	2	2	8%	10	3.3	2.31	1.43		
	Private sector	48	16	15	60%	79	26.33	18.77	4.14		
	Retired	4	2	2	6%	8	2.67	1.15	0.80		

*Significantly different ($p<0.05$).

first productive region nowadays is the Center, not Adamawa as stated in almost all the previous studies (Verina and Malal, 2010; Meutchieye *et al*., 2018). Aside from the oldness of this information, this difference can be explained by the fact that the practice of apiculture has not changed in the Sudano-Guinean area, with straw hives as the main type used and characterised by low productivity, while Kenyan bar hives are commonly used in the centre with higher productivity.

Sociocultural characteristics of beekeepers

This study demonstrated that the practice of beekeeping is mainly done by men in all the regions with no significant difference between the areas. This result is similar to a study made in the eastern part of Ethiopia (Serda *et al*., 2015) which also stated a predominance of men in the activity. Moreover, the results of this study show that beekeeping is done by all classes of Cameroonians independently of the profession as a main activity or as a subsidiary one. This interest in apiculture by

Table 4. Technical features of beekeeping in Cameroon.

Variables		Forestial	Western highlands	Soudano-guinean	Frequency (%)	Total	Mean	Standard deviation	Confidence interval	X^2	p-value
Number of beehives	]0-20]	6	2	2	8%	10					
	]20-40]	6	2	2	8%	10	36.18	20.23	3.46	0.29	0.99
	]40 -[	72	22	17	84%	111					
Main challenges	None	6	2	2	8%	10	3.33	2.31	1.43		
	Diseases	4	2	0	5%	6	2.00	2.00	1.60		
	Steal	20	8	8	27%	36	12.00	6.93	2.26	5.40	0.71
	Firebush	18	6	6	23%	30	10.00	6.93	2.48		
	At least two	36	8	5	37%	49	16.33	17.10	4.79		
Type of beehives	Straw hives	0	0	12	9%	12	4.00	6.93	3.92		
	Kenyan hives	36	10	8	41%	54	18.00	15.62	4.17	73.27	0.00001*
	Hives in frames	12	4	0	12%	16	5.33	6.11	2,99		
	>Two types	36	12	1	37%	49	16.33	17.90	5.01		
Numberof harvest/year	]0-2]	72	22	17	85%	111	37.00	30.41	5.66		
	]2-4]	12	4	4	15%	20	6.67	4.62	2.02	0.30	0.86
Quantity in liter harvested	]0-50]	12	4	4	15%	20					
	]50-100]	30	10	9	37%	49	14.56	11.68	2,49	1.00	0.91
	]100-Plus[	42	12	8	47%	62					
Way of harvesting	Traditional	60	18	19	74%	97	32.33	23.97	4.77	3.56	0.47
	Modern	24	8	2	26%	34	11.33	11.37	3.82		
Analysis of honey	Yes	12	4	4	15%	20	6.67	4.62	2.02	0.30	0.86
	No	72	22	17	85%	111	37.00	30.41	5.66		
Property of land for beekeeping	owners	6	2	2	8%	10	3.3	2.31	1.43		
	neighbours	6	2	2	8%	10	3.33	2.31	1.43	0.29	0.99
	both	72	22	17	84%	111	37.00	30,41	5.66		
Baits used	honey	6	2	1	7%	9	3.00	2,65	1.73	0.18	0.99
	wax	78	24	20	93%	122	40.67	32,39	5.75		
Existence of Legal organisation	Yes	24	8	8	31%	40	13.33	9.24	2.86	0.72	0.6
	No	60	18	13	69%	91	30.33	25.81	5.30		

all Cameroonians from all sectors can be explained by the fact that beekeeping is less time-consuming and unlikely to many other agricultural activities. This can also explain the great number of people with a higher level of education, who also show interest in the activity even if they already have a profession. Moreover, the main harvest periods (December-March; and June-September) are the holiday periods giving enough time to public

Table 5. Financial characteristics of apiculture in Cameroon.

Variables		Forestial	Western highlands	Soudano-guinean	Frequency (%)	Total	Mean	Standard deviation	Confidence interval	X^2	p-value
Price of a beehive	]0-10 000]	18	6	12	27%	36	16 259.54	6 291.53	1 077.38	11.67	0.02*
	]10 000-20 000]	6	2	0	6%	8					
	]+ 20 000[	60	18	9	66%	87					
Number of employees	0	54	16	11	62%	81	27.00	23.52	5.12	1	0,6
	[1-2]	30	10	10	38%	50	16.67	11.55	3.20		
Mean Salary	]0-30 000]	11	6	12	44%	29	31 818.18	21 213.20	3632.61	16.34	0.0003*
	]30 000-60 000]	31	4	2	56%	37					
Origin of fundings	Personal	78	24	19	92%	121	40.33	32.72	5.83	12.02	0.01*
	Private help	6	2	0	6%	8	2.67	3.06	2.12		
	Public	0	0	2	2%	2	0,67	1.15	1.60		
Main sold products	Honey	18	10	10	29%	38	12.67	4.62	1.47	27.51	0.0001*
	honey, wax	12	4	10	20%	26	8.67	4.16	1.60		
	honey, wax, Pollen	6	2	1	7%	9	3.00	2.65	1.73		
	More than three	48	10	0	44%	58	19.33	25.32	6.52		
Annual sales revenue (x1000 CFA)	]0-250]	6	4	2	9%	12	583 015.27	72 369.52	12 392.76	26	0.001*
	]250-500]	30	10	9	37%	49					
	]500-750]	24	6	2	24%	32					
	]750-1000]	6	2	4	9%	12					
	>1000	18	4	4	20%	26					
Way of selling	Wholesaler	12	4	3	15%	19	6.33	4.93	2.22	0.80	0.94
	Retail	48	14	10	55%	72	24.00	20.88	4.82		
	Both	24	8	8	31%	40	13.33	9.24	2.86		

workers and students for instance to practice beekeeping during their free time. The level of experience noticed in this study in beekeeping activity showed two main categories of beekeepers, the beginners with less than 5 years in the activity (40±16.29%) and the more experienced ones with more than ten years in the sector (53±16.46%) which suggest that almost all of the beekeepers who begin the activity are trend to never stop it and end up doing it for 10 years and beyond.

Technical features of the activity

The technical features of beekeeping in Cameroon, in general, are very similar between the different areas, the only significant difference seen was in the type of beehives. This can be explained by the fact that beekeepers use local materials for the construction of their beehives in order to reduce the cost, while the practice itself is similar. This also can be explained by the fact that the knowledge of the practice of apiculture has gradually evolved over the years to be almost homogenous all over the country due to the different training programs carried out by NGOs and public structures. However, this study raised a new point which is the land property of beekeepers. The very few number of beekeepers practising their activity on their land led to a higher incidence of challenges and may continue if nothing is done. This result shows the urge to put in place a similar policy as the one done

in Lesotho with a land affectation to apiculture to ensure the protection and the development of the activity (Salama, 2006).

The mean productivity per hive found in this study (14±11.68 litres) shows that the mean productivity per hive in Cameroon is higher than the one described in Ethiopia, the first African beekeeping-producing country (Miklyaev *et al*., 2017; Gratzer *et al*., 2021). Moreover, the higher number of harvests per year, up to four times is higher than in other African countries like Ethiopia or Ouganda (Amulen *et al*., 2019; Nat Schouten and LLoyd, 2019). These two points show the tremendous potential of Cameroonian apiculture. However, the gap in productivity between the areas noticed in this study is explained by the type of beehive, the number of harvests and the experience of the beekeepers. However, there is little attention paid to the quality of honey which is almost never analysed due to the fact that the local demand is very high that the consumers generally trust the beekeepers to ensure the quality and that almost all the production is sold outside of the normal commercial circuit where sanitary requirements are mandatory. Only the few who either export their product or sell them in commercial centres generally submit their product for analysis.

Economical features of beekeeping

If the technical features were similar between the areas, the financial evaluation of apicultural showed significant differences between the areas in almost all the variables except one. The differences observed in the income of beekeepers is the reflection in the economic level of their respective areas which are their first markets as shown in different studies from different areas between countries (Amulen *et al*., 2019; Nat Schouten and Lloyd, 2019) or even within the same country (Miklyaev *et al*., 2017; Tarekegn *et al*., 2017) so as in Cameroon (Verina and Malal, 2010; Matsop *et al*., 2011). The income generated from beekeeping like in other studies shows that the activity gives substantial revenue to the family with higher revenue compared to some eastern countries like Ethiopia, while in Malawi the price of a kg of honey is four times lower than the one practised in Cameroon (Salama, 2006; Tarekegh et al., 2017), which can be explained by the lower overall production in Cameroon which increases the price as the demand is always increasing. Another difference observed in general is the low governmental implication in the activity compared to the eastern countries, where the activity is very organised and funding available.

Conclusion and Recommendations

This study for the first time has given a glimpse of a general view of Cameroonian apiculture, which is characterised by a huge potential based on the ecological diversity that it offers and if well organised can lead the country to be one of the top honey producers of the continent. From this study, it was understood that only three regions over the tenth contributed to more than 95% of the national production of honey and that there is a growing interest in the activity from all levels of society. However, the insufficient investment in the sector hampers this potential as there has never been and is no national program on this activity despite the fact that the first product in Cameroon with international geographical indication is the white oku honey. Therefore, was suggested that a National program from the government should be put in place with specialised and regional centres for the development of the sector and that beekeepers should gather under a unique organisation for a better advocacy of their needs and efficiency of their activities.

CONFLICT OF INTEREST

We declare that we have no financial or personal interest that inappropriately influences in writing this article.

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REFERENCES

Amulen, D. R., D'Haese, M., D'Haene, E., Okwee Acai, J., Agea, J. G., Smagghe, G., & Cross, P. (2019). Estimating the potential of beekeeping to alleviate household poverty in rural Uganda. *PLoS One*, *14*(3), e0214113.

Gratzer, K., Wakjira, K., Fiedler, S., & Brodschneider, R. (2021). Challenges and perspectives for beekeeping in Ethiopia. A review. *Agronomy for Sustainable Development*, *41*(4), 1-15.

Salama, R. D. (2006). *Beekeeping regional analysis.* Total Transformation Agribusiness (PTY) LTD.

Ingram, V., & Njikeu, J. (2011). Sweet, sticky, and sustainable social business. *Ecology and Society*, *16*(1), Article number 37.

Institut National de la Statistique (INS) (2019). *Annuaire Statistique du Cameroun*. Yaoundé: Institut National de la Statistique.

Matsop, A. T., Achu, G. M., Kamajou, F., Ingram, V., & Boboh, M. V. (2011). Etude comparative de la rentabilité de deux types d'apiculture au nord ouest Cameroun. *Tropicultura*, *29*(1), 3-7.

Mbogning, E., Tchoumboue, J., Damesse, F., Sobze, M. S., &

Canini, A. (2011). Caractéristiques physico-chimiques des miels de la zone Soudano-guinéenne de l'Ouest et de l'Adamaoua Cameroun. *Tropicultura*, *29*(3), 168-175.

Meutchieye, F., Ngamadjeu, D. D., & Tchoumboue, J. (2018). Beekeeping features in the Cameroon Adamawa grasslands. *Genetics & Biodiversity Journal*, *2*(2), 11-16.

Miklyaev, M., Jenkings, G., & Barichelo, R. (2017). *Honey production in Ethiopia: A cost-benefit analysis of modern versus traditional beekeeping technologies.* Agricultural Growth Program and Market Development (AG-AMDE).

MINADER (2023). Le MINADER en chiffres. *Ministère de l'Agriculture et du Développement Rural*. Retrieved from https://www.minader.cm/index.php/nos-institutions/projets-et-programmes/

MINEPIA-DEPCS (2020). *Situation of production and imports in livestock, fisheries and animal industries sub-sector in 2019.* Yaoundé: MINEPIA.

Nat Schouten, C., & John Lloyd, D. (2019). Considerations and factors influencing the success of beekeeping programs in developing countries. *Bee World*, *96*(3), 75-80.

Ngom, E., Ndjogui, T., Nkongho, R., Iyabano, A., Levang, P., Miaro, L., & Feintrenie, L. (2014). Diagnostic du secteur élaeicole au Cameroun. Rapport de synthèse. *CIRAD-IRD-Minader*. Retrieved from https://spop.cirad.fr/content/download/4297/32132/version/1/file/SPOP_2014_Rapport_Atelier_PPA_Eseka.pdf

Niba, J., & Ingram, V. (2008). Market access for Cameroon honey: Challenges and opportunities for Cameroon honey to access European markets. *8th European IFSA Symposium.* Clermont-ferrand.

Serda, B., Zewudu, T., Dereje, M., & Aman, M. (2015). Beekeeping practices, production potential and challenges of bee keeping among beekeepers in Haramaya District, Eastern Ethiopia. *Journal of Veterinary Science & Technology*, *6*(5), 1-5.

Tarekegn, K., Haji, J., & Tegegne, B. (2017). Profitability of Honey Production and Honey Market Performance in Chena District of Kaffazone, SNNPR, Ethiopia. *International Journal of Research Studies in Science, Engineering and Technology*, *4*(10), 30-36.

Thrusfield, M. (2005). *Veterinary epidemiology* (2nd Edition). Oxford: Blackwell Science.

Verina, I., & Malal, w. (2010). Les produits apicoles au Cameroun. Retrieved from https://www.researchgate.net/publication/269166921_Les_produits_apicoles_du_Cameroun.