

Fulani cheese “Wagashi gassire” market tested by covid-19 in Benin

Baké Marie Thérèse SÉKO OROU^{1*}, Gwladys KOMAGBÉ²,
Wanignon Alphonse DOSSOU³, Abdoulaye BENON MONRA⁴,
Souaïbou FAROUGOU⁵, Antoine CLINQUART⁶, Marc PONCELET⁷,
Roch L. MONGBO⁸

^{1.} *Laboratory for the Analysis of Social Dynamics and Development (LADyD), University of Abomey-Calavi, Faculty of Agronomic Sciences, BP: 2009 Cotonou, Benin*

^{2.} *Communicable Diseases Research Unit, Polytechnic School of Abomey-Calavi, University of Abomey-Calavi, Abomey-Calavi, Benin.*

^{3.} *Food Science Laboratory, Faculty of Agronomic Sciences, University of Abomey-Calavi.*

^{4.} *Laboratory of Applied Anthropology and Education for Sustainable Development (LAAEDD), Faculty of Human and Social Sciences, University of Abomey-Calavi, Benin.*

^{5.} *Transmittable Diseases Research Unit, Polytechnic School of Abomey-Calavi, University of Abomey-Calavi, Abomey-Calavi, Benin.*

^{6.} *Food Technology Laboratory, University of Liège, Avenue de Cureghem 10, Liège 4000, Belgium.*

^{7.} *Observing Worlds in Recomposition (OMER), Faculty of Social Sciences University of Liège, Building B31, Quartier Agora, Place des Orateurs 3, 4000 Liège, Belgium.*

^{8.} *Laboratory for the Analysis of Social Dynamics and Development (LADyD), University of Abomey-Calavi, Faculty of Agronomic Sciences, Cotonou, Benin.*

Author of correspondence*: Baké Marie Thérèse Séko Orou, University of Abomey-Calavi, BP 2009, Cotonou, Benin,

ABSTRACT: This research aims to analyse the effect of the “Coronavirus Disease 2019” pandemic Covid-19 on the commercial practices of the WG in the township of Nikki and Dassa-Zoumé. The result appears that the barrier measures put in place by the Beninese government to limit the spread of the Covid-19 pandemic disrupted the WG trading system. They have led to an increase in the price of transport, which has also caused a scarcity of customers on the arteries, a drop in demand and, in turn, a collapse in daily income and, finally, the interruption of savings. Faced with these upheavals, several strategies have been adopted, the main ones are the reduction of product prices (29%) at Dassa and (40%) at Nikki and the extension of the payment period (30% at Dassa and 47% at Nikki) to Wagashi Gassirè Suppliers.

KEYWORDS: *Adaptation strategies, Benin, covid -19, market, Wagassi Gassirè.*

I. INTRODUCTION

Dairy products are highly valued in the human diet [1]. In particular, populations are attracted by various local pastoral dairy products despite the high availability and accessibility of imported dairy products thanks to their specificity and typicality [2]. In West Africa, rural and peri-urban communities value cow's milk through its transformation into various products. Thus, the richness of the African dairy tradition is one of the springs of the vitality of dairy markets [3]. Thus, the different dairy products are commercialised in various spaces and through several distribution channels. In Benin, a daily milk drawn from udder of a cow by herders is processed into traditional cheese called "Gagashi Gassirè" (WG) by Fulani women. In the northern part and particularly in the east of Atacora, approximately 73% of Fulani households produce WG [4]. It is the most consumed dairy product in Benin [5] in addition to or sometimes replacing meat, fish or eggs. WG is consumed in several forms (fresh, fried or smoked) as an accompaniment to several dishes offered in home and/or commercial restaurants. Indeed, the market for pastoral dairy products supplied by women allows both rural and urban populations to benefit from

products such as WG [6]. In addition, the WG holds a place of choice in the constitution of monetary income in rural households. Its marketing constitutes the backbone of the economy of many women [7] belonging to the distribution chain. Thus, the sale of the WG gives economic power to women and allows them to meet their daily needs first. Sometimes, the resources from this activity allow the purchase of cereals to overcome the lean season. The marketing of WG increasingly follows a distribution path from wholesalers to retailers to semi-wholesalers. Currently, in Benin, there are a number of points of sales, particularly in the cities of Gogounou, N'Dali, Parakou, Dassa-Zoumé, Bohicon, Calavi Porto-Novo and Cotonou. Beyond this economic importance, the sale of milk and its derivatives in the markets also confers decision-making power within households and make a way to the socialisation of Fulani women [8].

In the townships of Nikki and Dassa-Zoumé in particular, the marketing of WG is now such an economically interesting activity that catches fire various socio-cultural groups such as Batonou, Peulhs, Dendi, Haoussa, Tchamba, Idatcha, Fon, etc. (field data, June 2020).

The "Coronavirus Disease 2019" (COVID-19) pandemic caused by the virus "severe acute respiratory syndrome coronavirus 2" (SARS-CoV-2) and which emerged in China in 2019 has led to changes in the behaviours of individuals within the units production and marketing. Through health measures, rural economies face new difficulties due to COVID-19 [9]. Indeed, in Benin, in addition to the barrier measures which are the systematic wearing of bibs, the regular washing of hands with soap and water or the use of disinfectants, and physical detachment, the government has placed a sanitary cordon and required the closure of bars, the organisation of ceremonies in strict family privacy throughout the national territory. This cordon separated the southern part from that of the northern prohibiting any entry or any exit concerning this commerce outside of extremely circumscribed situations. Admittedly, these measures were taken to prevent the spread of SARS-CoV-2, however, they also "disrupted the supply chains" of food products and led to the collapse of markets, the slowdown of economic and commercial activity as well as the closing of certain companies [9]. In its analysis of the potential effects of COVID-19 on economic and social development in Benin, the United Nations Development Program [10] shows that in the medium term "the health crisis risks worsening the situation of inequalities and poverty within the population Beninese". In general, COVID-19 through government mechanisms has disrupted income-generating activities and particularly the sale of dairy products in Benin. In this regard, the general objective of this research is to analyse the effects of the COVID-19 pandemic on the practices and behaviours relating to the marketing of WG in the townships of Nikki and Dassa-Zoumé. This is specifically to identify the marketing channels of the WG in the two townships, on the one hand, and on the other hand, to describe the various changes observed as well as the resilience strategies put in place by the communities to face the disruption caused by the Covid-19 pandemic.

II. RESEARCH MATERIALS AND METHODS

This research was carried out in the township of Dassa-Zoumé and Nikki. Capital of the department of the hills, the township of Dassa-Zoumé has a geographical position which places it between the North and the South of Benin. Agriculture is the main economic activity of the populations with 11,268 agricultural households, of which 2.3% are engaged in livestock farming. The communities that live there are mainly composed of the Idaatcha and Mahi, to which are added the Adja, the Fon, the Peulh, the Yoruba, the Yom-Lokpa. The township of Dassa-Zoumé has 112,122 inhabitants of which the Peulh are in a proportion of 5.6% and practice livestock [11]. Fig.1 is the presentation of Dassa-Zoumé township as well as the location of the respondents.

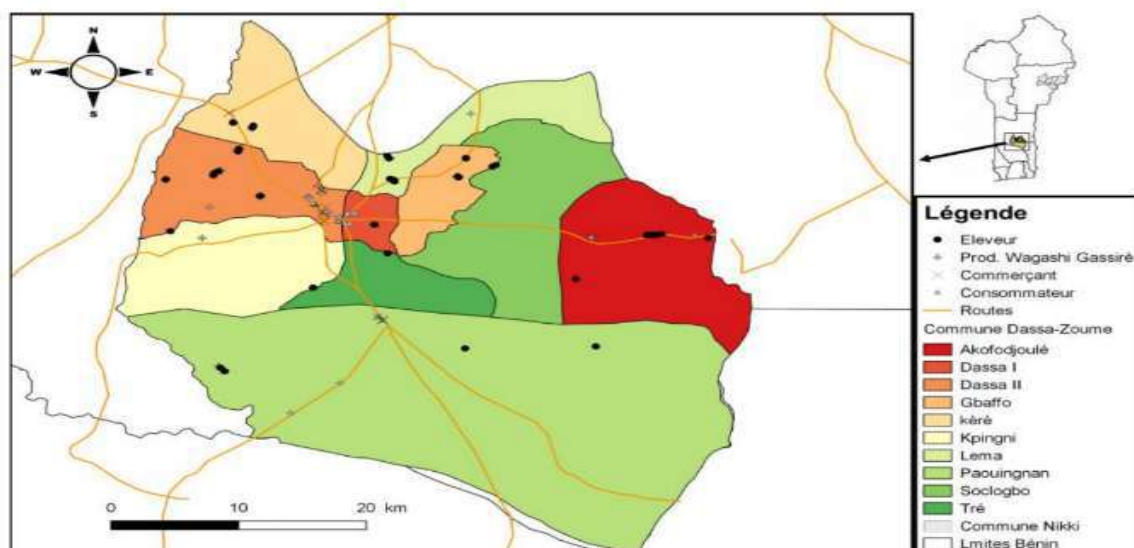


Figure 1: Map of Dassa-Zoumé township and location of respondents

Source: SEKO OROU, field data, May-July 2020

The township of Nikki, meanwhile, is located in the department of Borgou and has 151,232 inhabitants with 11,492 agricultural households [12]. This locality is populated by two dominant ethnic groups, the Peulh (44.7%) and the Baatombou (40.3%) [13]. Fig.2 shows the location of Nikki township and the respondents.

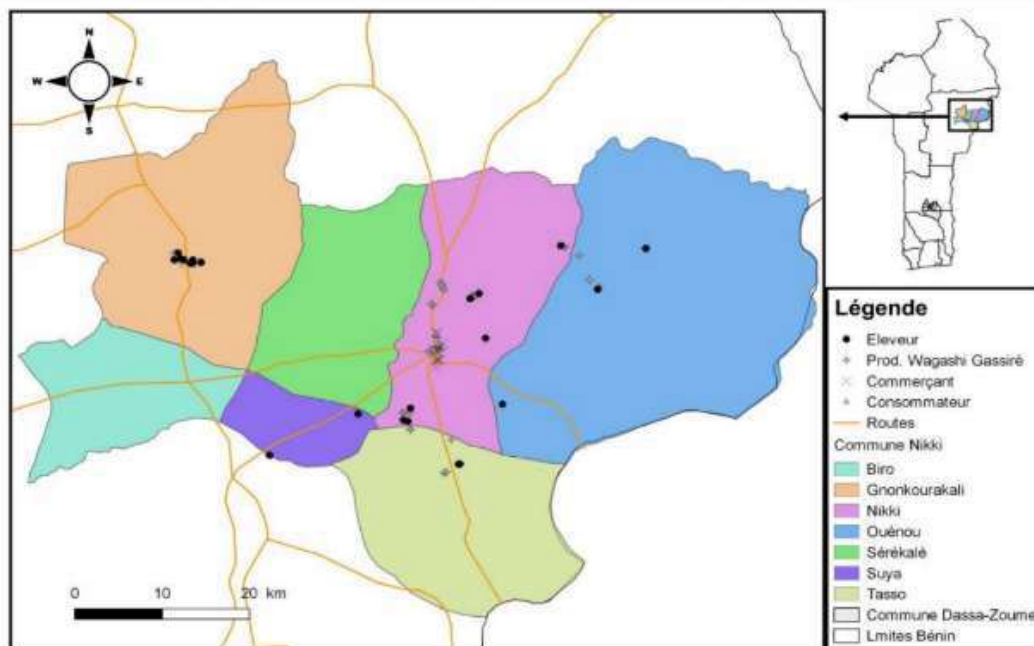


Figure 2: Map of Nikki township and situation of respondents

Source: SEKO OROU, field data, June 2020

This research uses the qualitative method to describe and explain the phenomena of commercialisation of the WG through measurable variables and personal experiences. Accordingly, the techniques used combine documentary research, interview and observation. By means of a reading sheet, the documentary research was carried out in the target townships and in the libraries of the universities of Abomey-Calavi and Liège and then on the internet. During this phase, the consultation of reports, works and theses on the sale of dairy products in general and on cheeses in particular, as well as articles addressing the Covid-19 pandemic, made it possible to refine the problem and discuss the results obtained. Primary data was collected as part of the implementation of a project to improve the production and marketing processes of Wagashi Gassirè using a semi-structured interview guide and a grid of observation. The reasoned sampling including various inclusion criteria such as: being a milk processor in WG, being a WG trader, being a WG consumer, practising in the selected sites, being accessible and available made it possible to constitute a sample of diverse actors to participate in the survey. Respondents were individually affected by the non-probabilistic snowball technique which consists in randomly choosing certain respondents from the target group and who, subsequently, indicate other actors with the same characteristics [14]. This technique was chosen for lack of availability of statistical data on the producers, traders and consumers of the WG. Indeed, the elected representatives of the professional organisations of breeders helped to identify in each locality at least one actor to be surveyed in each category. These first respondents helped in turn to identify other actors with the same characteristics as them. After the saturation threshold, 62 actors were interviewed during this research. The recorded interviews were transcribed and the practices observed were described. The content of these materials has been schematised. Similarly, the analyses using descriptive statistics were carried out using SAS version 9.4 software. The reference to the strategic and systemic analysis developed by M. Crozier and E. Friedberg [15] has made it possible to understand that the actors have room the manoeuvres to deal with the social and economic changes induced by Covid-19.

III. SEARCH RESULTS

The data collected and processed reveals a plurality of marketing channels of the WG. The nature of these systems and the payment methods used by the players have favoured changes induced by the Covid-19 pandemic. However, defensive strategies have been put in place.

3.1. WG Marketing Channels and Payment Terms

The WG is commercialised in various spaces, namely: sale in camps, sales in local markets, sales in arteries, door-to-door and shipment to major cities in Benin with two payment methods.

3.1.1. The farm, a space for exchange in Dassa-Zoumé

In the township of Dassa, beyond the traditional activities carried out in the camps such as livestock farming, agriculture, milk and WG production, the camps are places where commercial operations are carried out around the WG. The sale is made between women producers, consumers, traders and/or collectors. Sometimes, women buy the WG from their sister to resell them wholesale to traders. This is what this statement from a Peulh trader from Andébagni (Dassa-Zoumé) interviewed on June 24, 2020, tries to show: "it is a man from Soclogbo and I who buy the WGs produced in our camp."

Some traders hire collectors who roam the camps to buy WG. "I have five collectors who travel to different farms, following a well-defined periodicity: every market day from Dassa for collection in Concondji, every 5 days for Gobada and every 8 days for Tchèti." (Comment by a shopkeeper, Idatcha, Dassa-Zoumé on July 2, 2020).

On the other hand, in Nikki, it is generally the producers who are unable to go to the markets for reasons of distance or various impediments, who sell the WG on the farms. From the above, we can conclude that the sale in the camps is more developed in Dassa-Zoumé. The producers commercialise the WG without leaving their living environments.

3.1.2. Sale of WG in local Nikki markets

This circuit is used more by the producers of Nikki unlike those of Dassa-Zoumé. Most of them gather their daily production waiting for the nearest market day to sell it. "When I produce WG, I collapse it off and after three days I leave Diayola for Sakabansi market for sale," (Producer, gando, Diayola (Nikki) June 9, 2020). "To buy milk from the Peulh women and WG of Gando we go to the small markets. If you go for example to the markets of Suya, Ouenra, Guinrou or even Gnonkourokali, you will find milk and WG to buy, whatever the season" (Consumer, Baatonu, Biro (Nikki) June 10, 2020).

3.1.3. Door-to-door: a method of selling WG still current in Nikki

Women processors in peri-urban or urban environments roam the houses with bowl or WG trays on their heads. This old-fashioned method of selling is still practised. The words of this producer (interviewed June 11, 2020) confirm the existence of this practice at Nikki:

The door-to-door method is used for the direct sale of WG to consumers. In the township of Nikki, it is applied both by producers in urban areas and peripheral areas. Women who take on this technic think that it allows the rapid flow of their product. In addition, customers prefer this method of sale because it saves them from movement.

3.1.4. Sale of WG in the arteries in Dassa-Zoumé

In Dassa, the arteries are commercial arenas whereas this is not the case in Nikki. Dassa-Zoumé has four WG markets located in Godogossoun, Paouignan, Carrefour-Dassa and Moumoudji. These markets are all located on National Interstate Route 2 (RNIE 2) and National Interstate Route 3 (RNIE 3) where WG's commercial activities are developed.

2.1.5. Convoying WG to major cities for sale: a risky technic?

One of the sales technics in the research areas is to send the products to the major urban centres.

- Township of Dassa-Zoumé

Very early in the morning, the WGs are loaded into cars taxis for delivery to southern Benin. Photo plate (1) presents a transport situation of WG in the township of Dassa-Zoumé.



Photo plate N°1: Loading of WGs in Dassa-Zoumé towards southern Benin

Shooting: SEKO OROU, January 2021

Photo plate 1 shows two cars with the trunk (a) and luggage rack (b) loaded with “bleach” buckets and open cans containing WG. The car in photo a is in the dark. This informs the moment (early morning) of the loading of these products.

According to the results of the survey, 78.56% of traders in Dassa-Zoumé deliver WG daily to Abomey-Calavi, Cotonou or Porto-Novo. “My clients are in Cotonou and every day I send them WG except for reasons of fatigue or non-flow of the previous stock. In this case, the customer refuses to receive the goods.” This sales technic is based on trust, because the products are often sent to strangers. “God is in control because there are women I ship to that I’ve never seen and only know their phone number.” (Trader, Idaatcha, Dassa on July 1, 2020). It is the carriers who liaise between buyers and sellers. “I don’t physically know my clients. We just talk on the phone. But the driver who transports my products will be able to take me to them so that I can get my money back in the event of a problem” (Mahi trader, Pauouignan on January 30, 2021).

This mode of sales sometimes arises relational problems due to the faithless of certain customers who do not respect the oral commitments made. “Sometimes, I don’t get all of my money. Currently, in Cotonou and Porto-Novo, clients owe me 300,000 FCFA. I’m annoyed and if I don’t collect my funds, I won’t have any more capital, I won’t have any more capital soon. I disassociated myself from certain customers for lack of payment. At the large Tokpa market, some customers owe me up to 500,000 FCFA and I am no longer sure of recovering this money” (Trader, Idaatcha, Dassa on January 1, 2021).

Sometimes, this method of sale leads to conflicts between traders and customers for non-payment of royalties. The complexity of the problem is highlighted by the following statements:

“One of my important clients owed me about 300,000 FCFA. Despite this, I continued to send him WG. A year later, I looked for others and there, I stopped supplying it. She got angry and refused to pay me back. Her brother, who was a classmate and through whom I met my client, threatens me whenever the opportunity allows us to meet. He often maintains that I will not come into possession of my money and calls me ungrateful. There was a time when I had had enough of these threats that I informed my husband and we have lodged a complaint at the Dassa police station. When she has been taken in for questioning, my client had to pay me my money so that I could withdraw my complaint” (Trader, Idaatcha, Dassa, July 1, 2020).

These remarks reveal that the sale of WG constitutes an arena where the balance of power is established between the actors involved in this income-generating activity.

- Township of Nikki

In the township of Nikki, 93% of the traders interviewed collect WG in rural markets and send them either to Parakou, Kandi or Nigeria. However, the WGs produced at the mini-dairy are transported to Savalou, Glazoué and Allada by bus in the direction of Cotonou. For the Parakou and Kandi destinations, the routing is done by car taxis. But as for that of Nigeria, the WGs are put in 100 kg bags and entrusted to a motorcycle taxi which transports them to Tchikandou (Benin-Nigeria border). From there, an auto taxi picks them up to transport them to Ibadan. The WG's convoy route to Nigeria is shown in Photo Plate 2.

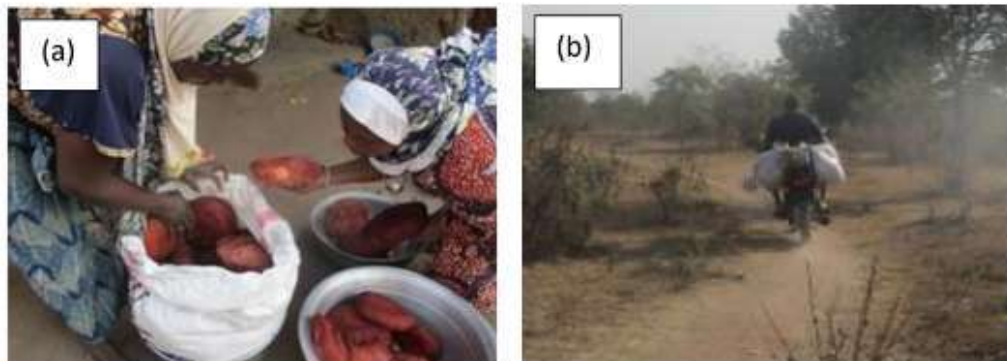


Photo board N°2: Preparation and transfer of the bag from WG to Nigeria

Shooting: SEKO OROU, February 2021

Photo (a) is a close-up of the WG's excitement for their transfer to Nigeria, photo (b) shows a motorcycle driver with WG's bag on a track. This plate informs about part of the trajectory of the WGs in the marketing system.

It should be argued from the aforementioned words and images that the flow circuits of the dairy products targeted by this research are very diverse. On the one hand, the marketing circuits are identical to the two townships: sale in the camps and the convoy of the WG in the urban centres and beyond the national borders. On the other hand, there are some that are specific to each township, such as sales in rural markets in Nikki and the transformation of arteries into WG markets in Dassa-Zoumé.

3.2. Typology of payment methods

Customers adopt two payment methods: after-sale payment observed at resellers and cash payment.

3.2.1. Cash payment

According to the producers and traders interviewed in the two townships, cash payment or payment on the spot is practised by WG consumers who buy small quantities for daily needs. It consists of paying on acquisition. It is a popular method of payment in retail.

3.2.2. Payment on credit

Payment on credit consists of obtaining supplies of WG from the deliverers and reimbursing after the products have been sold. Customers thus have a deadline for payment. This payment period varies according to the flow of products, the geographical position, the seniority of the customer and the rhythm of supply. But the traders consent that the previous stock should be paid for before another supply. This would avoid the accumulation of debts and, in turn, conflicts, as confirmed by the words of this Idatcha trader, interviewed in Dassa on December 30, 2020: "When the WGs are delivered, I do not receive the money the same day. The women finish selling the stock first and it's when I send a second time that I get the money from the previous delivery." Another Mahi trader, interviewed in Dassa on June 26, 2020, goes further by highlighting a difference in the treatment of customers.

"By the way, for the new customers I had less than a year ago, if I sell them WG one morning, they have to pay in the evening or at the latest the next day if the market is not satisfactory. Now, for the old customers, if I sell them WG one morning, they will reimburse me the debts of the old stocks and there, only the debts of the day before or those of the day will remain and it is in this way make it works."

3.3. Cordon Sanitaire and its corollaries on the commercialisation of WG

Measures to restrict the spread of Covid-19 have increased transport costs. Indeed, a few days after the detection of the first cases of coronavirus in Benin, the government took the decision on Monday, March 23, 2020, to establish a sanitary cordon around 10 townships in the south which seem to be the most exposed. This provision prohibited any entry and exit from the sanitary cordon space except by derogation from the prefects.

2.3.1. Sanitary cordon and scarcity of customers in Dassa-Zoumé

The sanitary cordon has made the roads deserted and the reduction in the number of passengers on board taxis has contributed to the increase in the cost of transport and, in turn, to the immobility of individuals. As a result, customers have become scarce. Also, as evidenced by this uneducated Idatcha trader, interviewed in Dassa-Zoumé on June 25, 2020: "With the bypasses, the journey becomes longer and the drivers increase the price. The transport of a container containing 30,000 FCFA of WG has increased from 1000 FCFA to 1500 FCFA." The price of transport has therefore increased by almost half because of the sanitary cordon.

One of the consequences of circumscribing travel, added to the suspension of public transport of people, is the scarcity of customers. A trader from the Tchamba sociocultural group (Togo), educated and questioned at the Moumoudji market on June 25, 2020, speaks to this effect:

"Really, this disease has created problems for us, people don't travel like they used to. While in the city of Dassa few people buy WG to consume, it is travellers who generally get their supplies from us. We could make a daily income of 50,000 FCFA, but currently it is 10,000 FCFA or 15,000 FCFA. There were about 30 of us selling in this market, but today you can see that we don't reach 10, don't we? There are no more customers."

Thus, because of COVID-19, traders believe they have recorded a loss of around 80% of their usual daily income.

The scarcity of customers leads to poor sales. As a result, savings have become impossible since revenues are already insufficient to meet family emergencies.

"When the market was good, I made a tontine of 1000 FCFA every four days, but now I can't pay my dues because I can't make ends meet before thinking about save. My husband is a taxi-car driver, he too quit his business first so it's hard for me to feed the children and find money to save him" (WG Fulani trader, uneducated, Dassa on June 20, 2020).

3.3.2. Township of Nikki and the sanitary cordon

In the township of Nikki, only the mini-dairy suffered the consequences of the health measure. The following statements bear witness to this influence on the activities of COLABEST.

"With the stoppage, the circulation of buses and the closing of bars, we have lost customers. It was by bus that we transported the WG to our customers in Allada and Glazoué, but we were forced to stop for lack of means of transport. Also, the Covid-19 through the sanitary cordon has caused our important customers in Glazoué and Savalou to stop placing orders, because their restaurants are empty. This situation disrupted our activities to the point where the mini-dairy almost closed its doors...you see that the whole team dispersed, the production manager and all the others left. Only the accounting secretary remains, because there was no more money to pay them" (a UCOPER agent, Fulani, educated, Nikki on June 11, 2020).

The other Nikki WG traders who are not used to transporting their products to southern Benin have had fewer problems with the progress of their activities than the mini-dairy. The traffic therefore followed its normal course in the townships of Parakou and Kandi as well as towards Nigeria. These localities should constitute outlets for the sale of the products of the mini-dairy. However, the other government measures have been an obstacle for the smooth running of WG's business in Nikki.

3.3.3. Closure of bars, organisation of ceremonies in strict family intimacy and collapse in demand, interruption of WG marketing activities and savings in the two townships.

During cultural and religious events, different dishes are served and sometimes accompanied by WG. Similarly, bars and restaurants are places where WG is consumed. Thus, the prohibition of gatherings of more than ten (10) people, the organisation of burial rituals in strict family intimacy, the closing of bars, discos, and other places of celebrations have led to the deterioration of human relations and a supply and demand shock for dairy products. The demand for products has been reduced, especially at the level of wholesalers in urban centres such as Cotonou.

Daily merchant receipts fell between 2019 and 2020. Fig.3 provides an illustration of this.

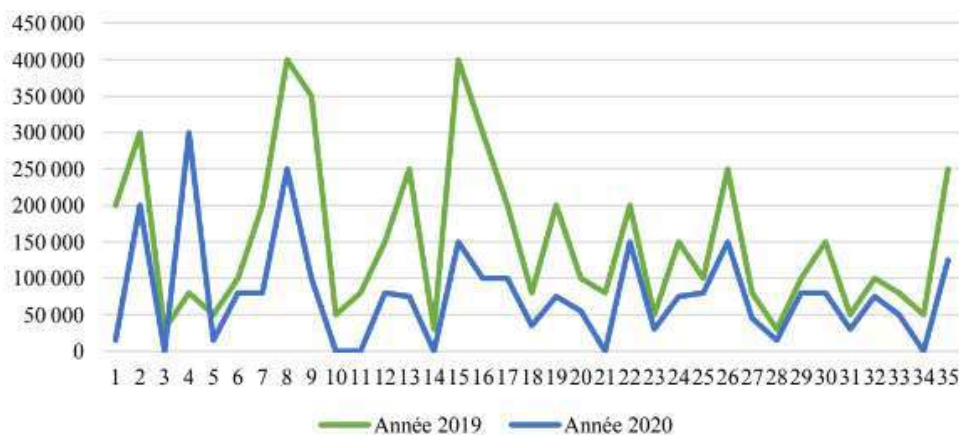


Figure 3: Daily income of traders in 2019 and 2020 in Dassa-Zoumé

Source: Field data, May-July 2020

Fig. 3 shows that in 2019 traders went up to 400,000 FCFA for daily revenue, while in 2020 the highest revenue is 300,000 FCFA, a difference of 100,000 FCFA. While the lowest revenue in 2019 was 15,000 FCFA, that of 2020 was reduced to 0 FCFA with a difference of 15,000 FCFA. The number 0 here represents individuals who have seized the activity. This collapse in revenue between the years 2019 and 2020 is also noted in the township of Nikki but at a very low proportion in comparison with the township of Dassa-Zoumé. What Fig.4 shows.

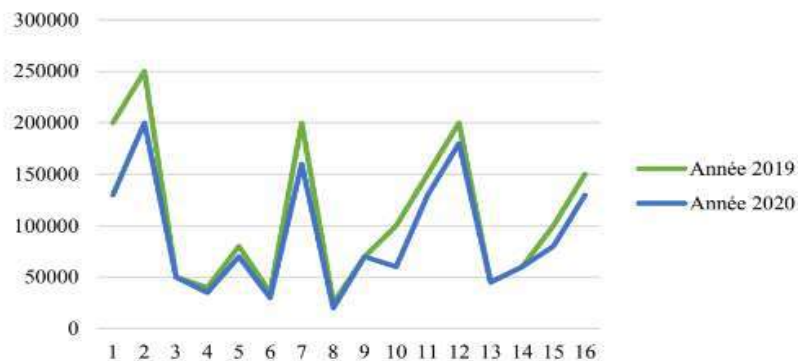


Figure 4: Daily income of traders in 2019 and 2020 in Nikki

Source: Field data, May-July 2020.

The reading of Fig. 4 shows a collapse in revenue in 2020 compared to 2019 revenue. 50,000 FCFA and, the lowest revenue remained the same in 2019 as in 2020 with a value of 20,000 FCFA among Nikki traders.

Of all these results, it should be noted that the closure of bars and kiosk, the sanitary cordon and the ban on public transport have led to an increase in the price of transporting products, the scarcity of customers and a collapse in demand, who got their supplies on the sides of the tracks, the cessation of sales and savings activities. However, it should be noted that the impact of Covid-19 is greater in the township of Dassa-Zoumé than in the township of Nikki for the fact that Cotonou, Calavi and Porto-Novo constitute the main outlets for their products and because of the rigour observed in the application of health measures in these large cities mentioned above, contrary to what was also observed in the townships of the North and particularly in Nikki also because of its geographical position.

Faced with these various problems that arise, communities develop mechanisms to accommodate with it.

2.4. Strategies for resilience to the Covid-19 “situation”

Resilience is a response to difficulties related to health and environmental risks. Faced with the deterioration of working and living conditions, traders have developed forms of resistance and accommodation. The nomenclature of these adaptation strategies is shown in Fig.5:

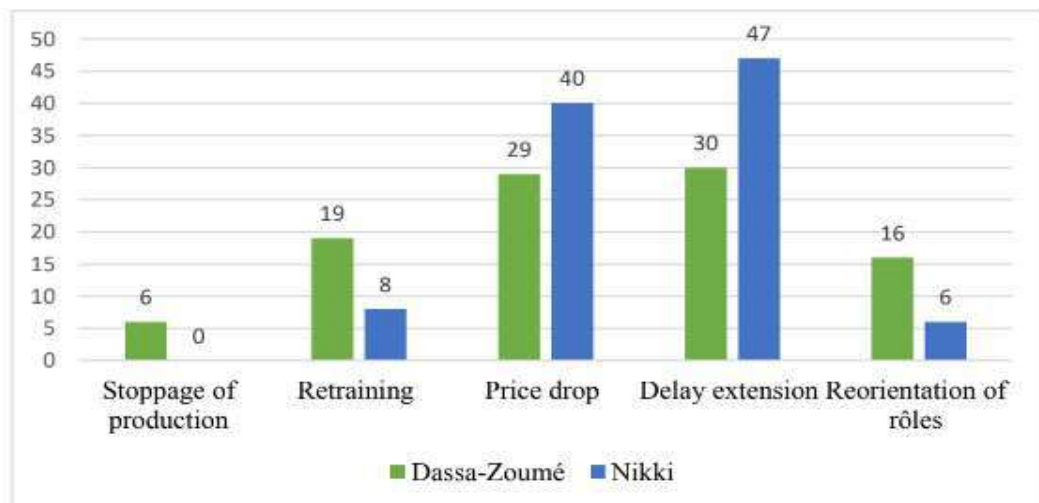


Figure 5: Breakdown of adaptation strategies following townships

Source: Field data, May-July 2020.

2.4.1. Retraining of actors in the sale of other products

Covid-19 has led to poor sales among WG traders and producers. For lack of customers, 19% of traders in Dassa against only 8% in Nikki have turned to the marketing of less perishable products (local rice, traditional soap, etc.). A trader from WG who became a soap producer recounts her experience. "Since the lane was 'closed,' my customers don't come anymore, and that's what made me start selling the local soap." A WG producer at Otcha 2 in the township of Dassa-Zoumé surveyed on June 23, 2020, speaks of the cessation of production due to Covid-19 and her reorientation towards the husking and sale of local rice: "Ah! I have stopped producing because I buy milk on credit and I find myself in debt. Currently, I buy local rice that I hull to resell... rice spoils less quickly than WG". This option is explained by the possibility of keeping the rice for a long time even in the event of a slump. In the township of Nikki, on the other hand, this strategy of resilience to Covid-19 is not too perceptible, because before the pandemic, the traders in this locality carried out secondary activities, the main one being the sale of food products.

2.4.2. Lower product prices

Faced with the slump in selling generated by the current health crisis, 29% of traders in Dassa compared to 40% in Nikki have resolved to lower WG prices to facilitate the flow of stocks. This is justified by the speech of one of the shopkeepers investigated at the Dassa crossroads, "In the period during which the sanitary cordon was placed, we delivered 11 pieces of WG at 4000F instead of 10 at 5000F in real time". It therefore recorded a loss of 27% of its turnover.

2.4.3. Extension of the repayment period

Due to a lack of sales, payment terms have been extended. This strategy was adopted by nearly half of the women in both Dassa-Zoumé (30%) and Nikki (47%). A saleswoman (Mahi, interviewed in Paouignan on June 20, 2020) comments on this adaptation measure:

"We take the WG from the producers and the next day after the sale we pay for what is already sold. But since the "corona" disease appeared, I do three days without emptying my merchandise, there, I have to do several days before finishing the sale of the stock. In this case, I can no longer send the money on time. They themselves understand that the situation has changed and that all of us no longer benefit from our work until the situation calms down. Each of us is forced to resign."

2.4.4. Reorientation of family roles

The milk is sold by the wives of herders to ensure the daily needs of the family such as the purchase of condiments and cereals during the lean season. However, government decisions on controlling the spread of the virus prompted 16% of traders in Dassa-Zoumé and 6% in Nikki to review the allocation of family responsibilities.

A saleswoman from WG, Peulh interviewed in Moumoudji on July 1, 2020, expresses her experience:

"I use the WG receipts to buy salt, chilli, Maggi broth; all the ones I need for the sauce. I also buy maize or sorghum when needed. But with the advent of this disease which is now being talked about on the radio, I can no longer make all these purchases. I find myself having to ask my husband for help."

Going in the same perspective, another Idatcha trader, interviewed in Dassa I on July 1, 2020, declares:

"I use the income from the WG trade, in the small expenses of the house such as the purchase of condiments, breakfast and clothing for the children. My husband takes care of the other expenses. But, for lack of customers, I stopped selling. My husband, a motorcycle taxi driver, is forced to take care of all the family expenses. This situation is not at all easy to endure."

It can be noted that the actors have developed response strategies, and the main ones are the reduction in price and the extension of the repayment period, followed by the conversion of traders to the sale of other products and the reorientation of economic roles within households. . And, finally, the cessation of the sale of the WG constituted a response given to the slump by a minority. These strategies have therefore made it possible to manage the disruptions resulting from government measures to fight against the Covid-19 pandemic. However, these strategies are part of the register of "passive resilience" or even adaptive crisis management.

IV. DISCUSSION

This research identified the commercial spaces of the WG in the townships of Dassa-Zoumé and Nikki. This is the WG's trade in the countryside, in the rural markets, in the arteries, "door to door" and the sending of these products to the urban centres. These results go beyond those of Biba [16] who mentions "door-to-door" and the direct sale of milk on the markets as milk marketing channels in Albania. But Duteurtre [17] complements these by identifying road infrastructure, weekly markets, physical retail markets as direct sales channels for dairy products in West Africa. In the same vein, Kora [18] presented the marketing circuit of the WG in Benin by listing the Fulani camps, the villages and the big towns in the interior of the country, the small towns and outside the national borders. (Nigeria, Niger, etc.). The conclusions Broutin et al. [19] that roadsides, houses, the market are the short circuits for marketing dairy products are similar to the results of the present work. However, they go further and emphasise that supermarkets and neighbourhood shops are also places where consumers are supplied. They also highlight the prominent role of dairies in (peri-) urban areas in milk marketing. A panoramic view of the documentation on the marketing of dairy products makes it possible to affirm that the convoys of products in urban centres are a new sales channel for the WG.

Crisis and the adaptation strategies. It has led to a collapse in the purchasing power of actors, in particular women who are very involved in the promotion of cow's milk. Ouassa Kouaro [20] discusses the effects of this crisis in terms of the vulnerability of women's income-generating activities in Cotonou, while Rosenstein [21] indexes psychological and social vulnerability. Also, in Ivory Coast, the health crisis relating to Covid-19 has

had a negative socio-economic impact on the living conditions of households [22]. The conclusions of Agricultural and Rural prospective Initiative [23] demonstrate that Covid-19 constitutes an obstacle in terms of access and availability of basic cereals and other basic necessities as well as an early entry into the lean season which usually has held in June-August. As a result, rural communities in Senegal are changing food consumption patterns. On the other hand, light has been shed by Frimousse, and Peretti [24] on the positive effects induced by the covid-19 crisis from the angle of organisational changes. They show that the virus is a catalyst for organizational modernisation in African companies.

The strategies adopted to respond to the threats of Covid-19 boil down to the retraining of actors in other sectors of activity or the interruption of sales or the exchange of goods as highlighted by Zara Laouan [25] for whom the “manufacture and sale of protective masks by women's groups” is one of the adaptations strategies. Faced with this brutal impact, some milk and WG traders decide to lower the selling price. With the agreement of their deliverers, they adopt the strategy of extending the repayment period for loans taken out to deal with poor sales. Along the same lines, Martin et al. [26] think that to respond to the shock of supply and demand, it is necessary to boost purchasing power and help the most vulnerable households in order to support the request. One of the economic strategies proposed by these authors is to extend the maturity of the debt [26] of companies, as is the case for milk traders and WGs in Dassa-Zoumé and Nikki. But one could wonder about the effectiveness of these mechanisms put in place by the actors to accommodate the Covid-19 situation.

V. CONCLUSION

In the townships of Dassa-Zoumé and Nikki, the marketing of milk and WG is an activity to which women devote themselves and which allows them to earn daily income to meet their needs and those of their families. However, the advent of Covid-19 threatens this sector in the said townships. The objective of this work is to understand the impact of this disease on the commercial practices of milk and WG.

This research was conducted in the township of Dassa-Zoumé located in central Benin and in the township of Nikki located in northern Benin. This research combined documentary research, interview and observation for data collection. The empirical data collected between May 2020 and February 2021 were subject to thematic sorting, descriptive statistical analysis and content analysis.

From the results obtained, it appears that the trade of WG is done through five different channels and the actors opt for two modes of payment: cash payment and payment on credit.

In addition, this research focused on the uncertainty inflicted by Covid-19 on the commercial practices of the WG, which constituted a source of income for rural women from various socio-cultural groups. It was noted that the measures taken by the Beninese government to limit the spread of the virus has led to an increase in the price of transporting products, a collapse in demand, the scarcity of customers who got their supplies on the sides of the tracks and the cessation of savings. Faced with these various problems that arise, communities develop mechanisms of accommodation. For this purpose, they have opted for retraining in other income-generating activities, lowering product prices, extending the credit repayment period and reorienting family roles, especially with regard to expenses.

VI. ACKNOWLEDGEMENTS

The authors express their gratitude to the Academy of Research and Higher Education-Commission for Development Cooperation (ARES- CCD) which funded the PRD WALAC 2019, the framework for which this article is written. They would like to thank all those who contributed to the completion of this work.

VII. CONFLICT OF INTERESTS

“The authors declare that they have no competing interests related to this work”.

BIBLIOGRAPHICS REFERENCES

- [1] K. S. Kassa, S.Ahounou, G-K. Dayo C. Salifou, Mikidadou T. Issifou , I. Dotché,P. S. Gandonou, V. Yapi-Gnaoré., B. Koutinhoun, G.A. Mensah et I. Abdou Karim Youssao, Performances de production laitière des races bovines de l’Afrique de l’Ouest ? Int. J. Biol. Chem. Sci. 10(5), 2016, pp. 2316-2330.
- [2] R. Chabi Toko, A. Adegbi et P. Lebailly Valorisation des produits laitiers dans les ménages Peul du Nord-Est du Bénin, Int. J. Biol. Chem. Sci. 9(6), 2015, pp. 2716-2726.
- [3] G. Duteurtre, Les produits laitiers africains à l’épreuve de la libéralisation: Des traditions laitières en danger, un patrimoine à valoriser, CIRAD, UMR Selmet, (Université de Montpellier, INRA, CIRA), 2019, 11p.

- [4] T. Bierschenk et R. Forster, L'Organisation Sociale des Peuls dans l'Est de l'Atacora (République du Bénin, communes de Kouandé, Péhonco et Kérou), Working Papers N°46. 2004, Johannes Gutenberg Universität Mainz, <http://www.ifeas.uni-mainz.de/workingpapers/Peuls.pdf>. Accessed on 29/mai/2019.
- [5] V. Aïssi, M. Soumanou, H. Bankolé, F. Toukourou, C. A. de Souza, Evaluation of hygienic and mycological quality of local cheese marketed in Benin, *Aust. J. Basic Appl. Sci.*, 3(3): 2009, pp. 2397-2404.
- [6] P. Sessou, S. Farougou, P. Azokpota, Abdou Karim I. Youssao, B. Yehouenou, S. Ahounou, D. Codjo Koko Sohounhlooue, 2013, Inventaire et analyse des pratiques endogènes de conservation du wagashi, un fromage traditionnel produit au Bénin. *Int. J. Biol. Chem. Sci.*, 7(3): 938-952. DOI: <http://dx.doi.org/10.4314/ijbcs.v7i3.5>
- [7] K. Dieng, M. Kalandi, A. Sow, Profil socio-économique des acteurs de la chaîne de valeur lait local à Kaolack au Sénégal, *Revue Africaine de Santé et de Productions Animales de Dakar*, 2014, pp.160-168.
- [8] J. Boutrais, Lait et produits laitiers en Adamaoua : Peuls buveurs de lait, Peules vendeuses de lait. In: Raimond C. (ed.), Garine E. (ed.), Langlois O. (ed.). *Ressources vivrières et choix alimentaires dans le bassin du lac Tchad*. Paris (FRA): IRD ; Prodig, 2005, pp. 413-434.
- [9] FAO, La covid-19 et ses effets sur les systèmes agroalimentaires, la sécurité alimentaire et la nutrition : incidences et priorités dans la région Afrique, Conférence régionale de la FAO pour l'Afrique; Trente-et-unième session, 26-28 octobre 2020, 17p.
- [10] PNUD, Etude des impacts socio-économiques de la COVID-19 au Bénin, Rapport final, 2020, 218p.II.
- [11] INSAE, Cahier des villages et quartiers de ville du département des collines, (RGPH-4, 2013), Cotonou, 2016, pp.1-15
- [12] INSAE, Cahier des villages et quartiers de ville du département du Borgou, (RGPH-4, 2013), Cotonou, 2016, pp.1-15
- [13] PDC, Commune de Nikki, CIRADEL, 2017, pp.17-77
- [14] M. Wilhelm, Rapport de méthodes, Echantillonnage boule de neige: la méthode de sondage déterminé par les répondants, Office fédéral de la statistique (OFS), 2014, 54p.
- [15] M. Crozier & E. Friedberg, L'acteur et le système: les contraintes de l'action collective, Paris, Seuil, 1992, 500 p.
- [16] H. Biba, Transition économique et dynamique de restructuration de la filière lait en Albanie. In: Padilla M. (ed.), T. Ben Saïd (ed.), J. Hassainya (ed.), Le Grusse P. (Ed.). *Les filières et marchés du lait et dérivés en Méditerranée : état des lieux, problématique et méthodologie pour la recherche*. Montpellier, 2001, pp. 110-132.
- [17] G. Duteurtre, Commerce et développement de l'élevage laitier en Afrique de l'Ouest: une synthèse. *Revue élevage et médecine vétérinaire pays tropicaux*, 2007, pp. 209-223.
- [18] S. Kora, Contribution à l'amélioration de la technologie de production du fromage peulh au Bénin. Thèse d'ingénieur agronome, Université d'Abomey-Calavi, Bénin, 2005, pp.1-30.
- [19] C. Broutin, L. Levard et M-C. Goudiaby, Quelles politiques commerciales pour la promotion de la filière « lait local », Paris, Gret, 2018, 100 p.
- [20] M. Ouassa Kouaro, Vulnérabilité et stratégies de résilience face à la covid-19 à Cotonou: expériences des femmes gestionnaires des activités génératrices de revenus du 13e arrondissement de Cotonou au Bénin in *Conscience historique et conscience sanitaire en Afrique Qu'attendre des sciences sociales face à la COVID-19?* Presses de l'Université d'Abomey-Calavi (PUAC), 2021, pp.386-415.
- [21] E. Rosenstein. Handicap, confinement et l'expérience de la vulnérabilité in COVID-19 le regard des sciences sociales, Éditions Seismo, Sciences sociales et questions de société SA Genève et Zurich, 2020, pp 215-225.
- [22] INS, Mesure de l'impact socio-économique du covid-19 sur les conditions de vie des ménages en côte d'ivoire, 2020, 60p.
- [23] IPAR, Effets de la COVID-19 sur les ménages agricoles et ruraux du Sénégal, 2020, 20p.
- [24] S. Frimousse et J-M. Peretti, Les changements organisationnels induits par la crise de la Covid-19, EMS Editions, « Question(s) de management », 2020p.105-149 <https://www.cairn.info/revue-questions-de-management-2020-3-page-105.htm>, consulté le 07 avril 2021.
- [25] F. Zara Laouan, Analyse régionale rapide de genre en Afrique de l'Ouest COVID-19, CARE, Afrique de l'Ouest, avril 2020, 28 p.
- [26] P. Martin, J. Pisani-Ferry, X. Ragot, Une stratégie économique face à la crise, Notes du conseil d'analyse économique 2020/3 (n° 57), pages 1 à 12, ISSN 2273-8525, <https://www.cairn.info/revue-notes-du-conseil-d-analyse-economique-2020-3-page-1.htm>.