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Analysis of Marketing Channels of Plum (*Dacryodes edulis*) from the Njombe-Penja Production Basin

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ABSTRACT

This study on the analysis of plum (*Dacryodes edulis*) marketing channels in the Njombe-Penja production basin is out to inform traders on channels that can ensure the faster flow of plum from producers to consumers while ensuring higher gross margins. Data were collected using questionnaires administered to 70 traders; including 31 from the markets of Njombe-Penja, 22 from the Douala markets and 17 from the Yaoundé city markets. Seven categories of traders were identified: producers, wholesalers, collectors, multiple purposes agents, conveyors, exporters, and retailers. Results show that the retail sector is dominated by women (61.1%); while all men are in wholesale trade; a majority of them (81.5%) are with multiple purposes (81.5%). Plum pass through the wholesale and retail markets in moving from producers to consumers. Eight marketing channels were identified; the shortest constitutes of an intermediary and the longest of five intermediaries. Prices are set at the selling points and payment can be made either in cash or on credit. In abundance period, traders who sell in bulk have a higher gross margin with large size fruits; while in retail sales, the margin is higher with small fruits. The profit margins for export to France are more important than to the neighboring countries of Cameroon. Results also show that the marketing of plum face four major problems; the perishable nature of the fruits, lack of capital, difficult access to certain production areas, and the unavailability of vehicles. Based on these findings; farm tracks should be improved upon by the state to facilitate the flow of plum to urban markets.

Keywords: African pear, production basin, marketing channel, Njombe-Penja, market.
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INTRODUCTION

Fruits and vegetables are important components for a healthy diet and if consumed daily in sufficient quantities, they could help prevent major diseases, such as cardiovascular disease and some cancers. According to FAO and WHO (2004), low consumption of fruits and vegetables is the cause of about 31% of ischemic heart disease and 11% of worldwide strokes. According to Temple (1999) in Cameroon, plum (African pear) was the third most important fruit after banana and kola nuts in terms of production value. The plum market in Cameroon is structured around two main poles of the main cities which are Douala (New Bell market) on the coast, and Yaoundé (Mfoundi market) in the Centre region. In general, its production is high between June and September, but sources vary (Awono et al., 2002).

Plum economic importance remains handicapped by its perishable nature which reduces the shelf life and causes many post-harvest losses (Noumi et al., 2006).The plumb, a few days after the harvest (3 to 5 days) triggers a process of softening responsible for the huge post-harvest losses; these losses are around 50% in Cameroun and Congo Brazzaville (Kengue, 2002; Silou et al., 2002) and 65% in Nigeria (Nwufo et al., 1998). Hence, a transfer from producers to consumers must be very fast to reduce post-harvest losses. Retailers of provincial cities in France, London and Brussels for example are reluctant in selling plum because of its perishable nature (Tabuna, 1999). The size of plumb is a determining factor in the pricing mechanism ; other characteristics such as color, taste and thickness of the pulpit may also influence market value (Atangana et al., 2002). There is an assumption for most non-timber forest products that traders exploit producers (Neumann and Hirsch, 2000). However, the results of Awono et al (2002a) show that, on average, producers receive 75% of the price paid by the consumer. However, these results are not identical in all zones. In Makénéné Est for example the producer receives 78% of the sale price, but in Ebolowa it receives around 51%. This study seeks to provide answers to; what is or are the best marketing channels that can ensure the rapid flow of plum? Specifically, it seeks to provide answers to the following research questions: What are the characteristics of the actors involved in the marketing of plums produced in

Njombe-Penja basin? What are the marketing channels through which the plum transits? What are the constraints and opportunities for the development of these marketing channels? The objective of this study is, therefore, to analyze the main marketing channels of plum and suggest ways to improve them.

METHODOLOGY

The study was conducted in the Njombe-Penja Subdivision, located in Mungo Division in the Littoral Region of Cameroon. The Njombe-Penja subdivision has a population of about 31,090 inhabitants. The main economic activities in the area are limited to agriculture and trade. The town of Njombe-Penja is located within latitude 4 ° 35 'North and longitude 9 ° 39' East at 80 km from Douala and characterized by an elevation of 80 m (Cohan et al., 2003 cited by Monkam, 2013). The climate is of Equatorial Guinea type; with an average relative humidity of 72%. The average rainfall is 2086 mm with about 161 days of rain per year. Temperatures range from 22.1 to 32.2 ° C with an average of 27.1 ° C. The relief is plain; the slope is between 0 and 16%; the soils are volcanic and Eutrophic brown (Cohan et al., 2003).

Njombe-Penja production basin has five fruit markets (two in Penja and three in Njombe) located along the National Road No. 5(Douala-Bafoussam axis). These markets are generally divided into three pavilions: the collection, the sale of fruit and that of the sale of plantain; and each of these pavilions usually has a staff of about fifteen persons. Based on interviews with resource persons (in MINADER services; in IRAD) and after visiting the plum markets operating in the area and the cities, a number of markets were selected (collection markets, wholesale and retail markets) and in these markets, the different types of actors were identified (producers, collectors, wholesalers and retailers).

A sample of the different categories of actors in the Njombe-Penja markets was surveyed (one third) of the actors identified; and in other markets where it was impossible to determine the number of actors, a random sample whose consistency was a function of time available, was surveyed. A total sample of 70 actors was interviewed; 31 in Njombe-Penja, 22 in Douala, and 17 in Yaoundé. It is important to specify that, as Njombe-Penja was the base of our study, we have had time to contact most of the actors implied in the activity; but in Douala and Yaoundé, contact was made with the number of persons that was possible base on the number of days available.

Data Analysis

Data were analysed using descriptive statistics and statistical analysis using the Statistical Package for the Social Sciences (SPSS) software and Excel spreadsheet.

RESULTS AND DISCUSSION

Socio-economic characteristics of the respondents

Identified plum sellers came from four main regions, the Littoral, Centre, West and South regions. The results of this study showed that all the collectors and wholesalers surveyed were male. Wholesalers appear only in urban areas; itinerant wholesalers usually emerge from agents that perform multiple functions and mainly appear when the plums are scarce on the market. Retailers in rural areas are mostly male (75%), although depending on the market one can find a female dominance; on the other hand, urban retailers are mostly women (90%), with stalls in the markets or roadside and embers in all corners of streets.

Exporters are settled in both rural and urban areas, and this is a very rare category because exportation requires a lot of money; hence a team of multiple functions agents generally partake in this activity. The actors that perform multiple functions are based in both rural and urban areas and are predominantly male (81.5%). According to Awono et al., (2002), retailing is dominated by women (95%), while men are concentrated in the wholesale trade (71%). This may be because retailing requires a certain level of patience, as it can take one or more days to finish a stock. The results of this study are in line with Awono et al., (2002), findings for the urban area, but contrary to the rural area.

The average age of plum traders is about 36 years with a minimum of 20 years and a maximum of 60 years, and an average plum marketing experience of 9 years with a minimum of a year and a maximum of 40 years. Thus there is a predominantly young population; because the renewal of the actors is continuous. The comparative analysis of age in relation to gender shows that men last longer in the market as compared to women and this is because they enter into the activity earlier than women

Regarding the marital status, the collectors are either married or cohabiting and this is in equal proportion. This can be explained by the fact that it is generally matured individuals who have family responsibility. Wholesalers are mostly single (66.7%) which could be due to their multiple trips and spend many nights away from their homes. Retailers are generally very stable because they work within their area of residence; which may explain the high marriage rate (51.4%). Exporters are young men who are just getting engaged into active life and who do not yet have a stable financial situation; and thus, are generally at the cohabiting level. Multiple function agents have the peculiarity of intervening at all levels of the circuit; there are 54.5% married, 31.8% cohabiting and 13.6% singles.

Plum market structure

The marketing of plum (African pear) in Njombe-Penja is done either in local wholesale markets (collection points, field edge) or local retail markets (fruit markets, embers on curbside). In Njombe-Penja, five retail markets specialized in the trade of fruit and fresh food were identified. They are the market B, Mbona Ndole market, Mboko Bridgemarket in Njombe, and markets A and B in Penja. Besides these specialized markets, there is the big market of Penja and the market A of Njombé where there are stalls on which plums are sold in retail. The Mbona Ndole market of Njombe, the market A and B of

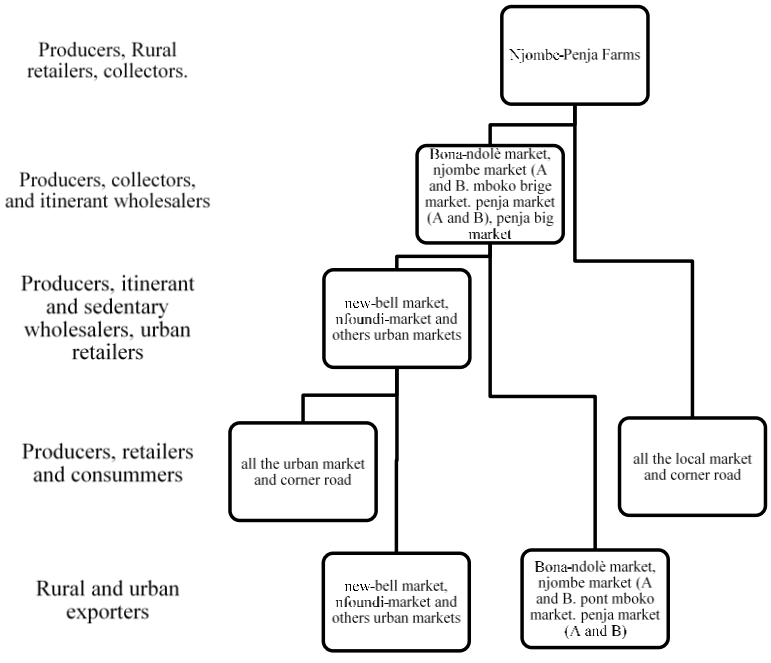

Figure 1: Markets channels and actors through which the Njombé-Pénja plum transits.

Njombé and the big market of Penja have each a placeholder for the collection of fresh fruits and food in general (collection points). There are also collection points in production villages that make up the places of origin of fruit and especially plums.

Note that, the collectors, the multi-purpose actors and exporters are those engaged in the collection points; andretailers are involved in the fruit markets where they retail their fruits. Retailers generally received the fruits directly in the market and sometimes get it themselves from producers with whom they have agreements. To become a trader in the fruit markets, the procedure is usually done by sponsorship; indeed, one must first work with an old trader and once the individual has a mastery of the market, the person has to meet the officials to seek recognition as a member of the market. It is requested for this purpose to symbolically provide drinks to the old traders. To become a collector, one needs to have money and pay taxes to the municipality.

Five destinations were identified within the country and four destinations outside the country where plums from the Njombe-Penja production basin are sent namely: Bamenda, Bafoussam, Kribi, Douala and Yaounde in the country; and France, Gabon, Nigeria and Congo out of the country.

In this study, the analysis was done only for markets of Douala (New-Bell Station) and Yaounde (Mfoundi market); because according to the survey, 95% of plum from the Njombe-Penja, production basin are sent to these markets (90% for Douala and 5% for Yaoundé) the remaining 5% divided between the other three cities and exports. This finding is in line with the results of Isseri and Temple (1999) who asserted that plum, in addition to serving for the self-consumption of rural populations, is sent to cities for marketing.

It is difficult to determine the numbers of traders in the urban wholesale markets, especially those involved in the trade of plum; because one needs only to bring his:/her products and pay the required fees to the market managers for access. Traders usually arrive in the evening or at night, install their products and sell at the upcoming market which start at 4:00 am and ends about 10:00 am.

Production capacity of plum from the locality of Njombe-Penja

The plum vendors are present in the markets throughout the week, while transporters are present for 3 or 4 days a week. The flow capacity of plum in the Njombe-Penja production basin according to the different categories of actors show that collectors have an average collection capacity of 4.5 string bag per descent, retailers have a capacity of 1.92 string bags, exporters have a capacity of 50 string bag and the multi-purpose actors have a capacity of 50.45 string bags. It is observed that retailers are the majority (54.8%), followed by the multi-purpose actors (35.5%) of the workforce. Collectors and exporters are moderately represented with 6.5% and 3.2%, respectively. This can be explained by the fact that the multi-purpose actors generally perform these tasks.

Flux of plums produced in Njombe-Penja

Figure 1 shows that, going from the farm to the consumer's table, plums transit through several markets and are manipulated by several types of actors. The market is divided into two broad categories namely wholesale and retail markets. In addition to these two broad categories, there are also export markets.

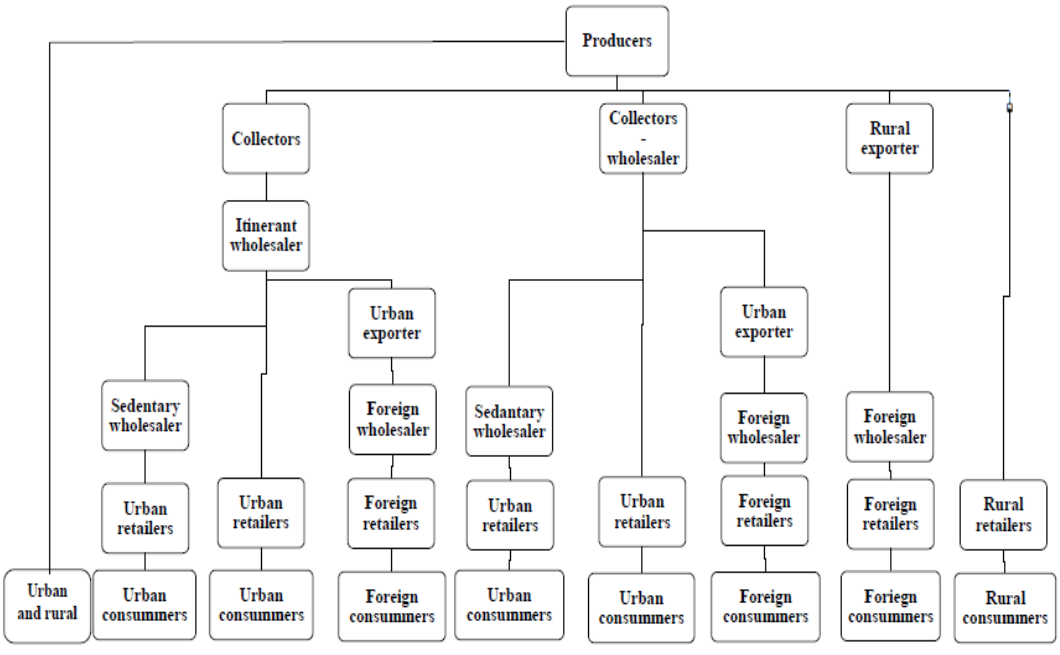

Figure 2: Patterns of plum flow in the Njombe-Penja production basin.

Table 1: Marketing channels and actors for plums from Njombe-Penja production basin.

Circuits		Actors
A= intermediaries	4	Producers ; Collectors ; itinerant wholesalers ; sedentary wholesaler ; urban retailer ; urban consumers
B= intermediaries	3	Producers ; Collectors ; itinerants wholesalers; urban retailers ; urban consumers
C= intermediaries	5	Producers ; Collectors ; itinerants wholesalers ; urban exporters ; foreign wholesalers ; foreign retailers ; foreign consumers
D= intermediaries	3	Producers ; Collectors-wholesalers ; sedentary wholesalers ; urban retailers ; urban consumers
E= intermediaries	2	Producers ; Collectors-wholesalers ; urban retailers ; urban consumers
F= intermediaries	4	Producers ; Collectors-wholesalers ; urban exporter ; foreign wholesalers ; foreign retailers ; foreign consumers
G= intermediaries	3	Producers ; rural exporters ; foreign wholesalers ; foreign retailers ; foreign consumers
H= 1 intermediary		Producers ; rural retailers ; rural and urban consumers
J = 0 intermediary		Producers ; rural and urban consumers

A= 4 intermediaries: Collectors; itinerant wholesalers; sedentary wholesaler and urban retailer; B= 3 intermediaries: Collectors; itinerants wholesalers and urban retailers; C= 5 intermediaries: Collectors; itinerants wholesalers; urban exporters; foreign wholesalers and foreign retailers; D= 3 intermediaries: Collectors-wholesalers; sedentary wholesalers and urban retailers; E= 2 intermediaries: Collectors-wholesalers and urban retailers; F= 4 intermediaries: Collectors-wholesalers; urban exporter; foreign wholesalers and foreign retailers; G= 3 intermediaries: rural exporters; foreign wholesalers; foreign retailers; H= 1 intermediary: rural retailers; J = No intermediary

At the farm level, there are producers, the rural retailers and the collectors who are involved. In this context, the producer ensures the production of plums, which is sold locally to rural retailers or collectors.

Sometimes the producers carry their fruits to the collection points where collectors and itinerant wholesalers are found; and the agents who obtain fruit from the field themselves, with the exception of rural retailers, also pass through the collection points for loading and sizing. The fruit is then transported to urban wholesale markets, where, there are itinerant and sedentary wholesalers and urban retailers who come to stock up. At the local retail market, there are producers, retailers and consumers who come to sell and buy on the spot.

At the urban retail market level, there are the same actors except for the producers. At the export level, there are rural exporters at rural collection points; and urban exporters in urban wholesale markets.

It is observed that there are nine circuits (9) (Figure 2) through which the Njombe-Penja plums transit.

The shortest consist of no or zero intermediary and the longest consist of five (5) intermediaries. Table 1 shows a summary of these circuits with the various actors

Table 2: Gross margins for plums based on fruit size and period for collectors.

Period	Fruit size	Buying price	Selling price	Gross Margin
	Large	30 000	40 000	10 000
	Medium	20 000	25 000	5 000
Scarcity	Small	16 000	20 000	4 000
	Large	15 000	20 000	5 000
	Medium	7 000	10 000	3 000
Abundance	Small	4 000	6 000	2 000

involved.

Driving the plum market

At the level of rural retailers who buy from producers and resell on the spot to consumers, prices are set according to the customer, and this is the same for collectors and wholesalers. When producers arrive at the market with plums, a form of auction takes place where the products are awarded to the highest bidder. Some have traders with whom they agree in advance on prices per string bag, entrust the trees to them and ensure the number of bags picked during harvests. It can be concluded that the pricing method of the plum is done at the counter.
Payment is made either in cash or in the form of credit. Retailers usually sell in cash, but at the level of retailers in the local fruit markets, it has been observed that selling on credit is done based on familiarity between traders and consumers (who are mostly travellers). Between the producer and the traders, producers sometimes trust traders and give them products on credit, leaving them time to dispose off before payment is made. However, the method of payment on credit is generally a source of conflict between producers and traders as well as between traders and consumers; because of dishonesty on the part of traders and consumers, as they sometimes take fruit and fail to pay as agreed.
Contact point between the producer and traders is the market, or at times the trader is taken to the farm. However, traders, who have affinities with producers, communicate with them by telephone and make arrangements for the fruit.
Transporters facilitate the transportation of goods from the plantations to the consumer. Those actors with large turnovers usually rent transport buses which collect the plum from the collection points to the wholesale markets. Those who do not have enough bags to load a bus, carry their plum with the help of pickups or motorcycles from the production areas to the borders of the roadside (National Road No. 5) where they can avail transport means. These are usually empty trucks returning from the West after delivering goods. The transport of plums for export is exclusively done by air for European destinations and both by air and truck for neighbouring countries.

Performance of the plum market

Analysis of gross margins in the national plum trade

The plums are packed in string bags of three dimensions: large string bag, medium string bag and small string bag. An average string bag is generally used and the capacity is equivalent to a bag of fertilizer; The large string bags whose capacity is about one and a half times that of the average string bag is generally used in the export of plums. In this study, use was made of an average string bag whose value is known to all traders and large string bag for exporters.

Gross margins for rural traders

According to information obtained from traders in the Njombé-Pénja locality, the price of a bag of plum at the time of the first sale by the producer can vary from 4 000 to 15 000 FCFA in times abundance. This variation is due to the variation in fruit size, the larger the fruit is the higher the value. Hence, a bag of large fruits can cost 15 000 FCFA while a bag of the same volume (or weight) consisting of small fruits costs 4 000 FCFA. In times of scarcity, the price of the same bag can vary from 16 000 to 30 000 FCFA.

a) The collectors

Table 2 summarizes the price evolution of a string bag of plums according to the size of the fruit and the period.
It can be observed from table 2 that the larger the fruit, during periods of scarcity, the greater the gross margin for the trader. The traders involved here are the local collectors and retailers who sometimes play the role of the collector. These retailers usually buy from producers and resell in small plates, small baskets, or spread them on the ground or in trays.

Retailers in fruit markets

The plates capacity used in the fruit markets vary in size containing 10 to 20 fruits; about 10 per plate for big fruits, about 15 per plate for average fruits and about 20per plate for small fruits. They are sold at 1 000 FCFA when there are scarce and 500 FCFA during period of abundance. Knowing that an average bag of plums whatever the size of the fruits, produces an average of 45 plates, there are 450 fruits per string bag for large size, 675 fruits for the medium size and 900 fruits for the small size. During the period of scarcity, a bag of plum sold in retail earns approximately 45,000 FCFA and during the period of abundance 22,500 FCFA.
Unlike wholesale where the gross margin increases with the size of the fruit, with retail, traders have a larger margin with berries; because they are purchased

Table 3: Gross margin for local market retailers according to the size fruit and period.

Period		Buying price	Selling price	Gross Margin
	Large fruits	30,000	45,000	15,000
	Medium fruits	20,000	45,000	25,000
Scarcity	Small fruits	16,000	45,000	29,000
	large fruits	15,000	22,500	7 ,500
	Medium fruits	7,000	22,500	15,500
Abundance	Small fruits	4,000	22,500	18,500

Table 4: Gross margins of local ember owners according to the fruit size and period.

Period	Plum Size	Buying price	Selling price	Gross margin
	Large	30,000	45,000	15,000
	Medium	20,000	33,750	13,750
Scarcity	Small	16,000	30,000	14,000
	Large	15,000	22,500	7,500
	Medium	7,000	22,500	15,500
Abundance	Small	4,000	22,500	18,500

Table 5: Gross margins for collector-wholesalers and Itinerant wholesalers during the period of abundance.

Plum Sizes	Producer selling prices	Purchase prices from collectors	Wholesale Market Prices	Gross margin for collectors-wholesalers	Gross margin for itinerant wholesalers
Big	15,000	20,000	25,000 to 30,000	10,000 to 15,000	5,000 to 10,000
Medium	7,000	10,000	15,000 to 20,000	8,000 to 13,000	5,000 to 10,000
Small	4,000	6,000	9,000 to 13,000	5,000 to 8,000	3,000 to 6,000

cheaper from producers than large fruits but provide virtually the same income as shown in Table 3.

b) The local embers

In the case of the embers installed at the edges of roads, in times of scarcity, they sell the big fruits for 100 FCFA a fruit, the medium size for 50 FCFA and the small-sized fruits are sold three for 100 FCFA. In times of abundance, large fruits are sold for 50 FCFA; average fruits are sold three for 100 FCFA and the small size for 25 FCFA per fruit. This implies that in a period of scarcity, the large fruit cost 45,000FCFA, medium size fruit 33,750 CFAF and the small fruit at 30,000CFAF.In times of abundance, the bag of large fruits costs 22,500 FCFA, that of the average fruit 22,500 FCFA and that of the small fruits 22,500 FCFA. These results are presented in Table 4.

The margins for embers are the same as those of retailers during the period of abundance; but during scarcity, there exists a difference between the margins of the different grades of fruit in the embers but remains insignificant with an average margin of about 14,000 FCFA.

Gross margins for traders undertaking the transition from rural markets to urban wholesale markets

To transit from the rural area to the wholesale markets in urban areas, plums pass through collectors-wholesalers or itinerant wholesalers. Collectors-wholesalers are those who buy products directly from producers in rural areas to resell in the wholesale markets in urban areas. Itinerant wholesalers are those who buy products from collectors to resell them in wholesale markets in urban areas. In these wholesale markets, fruits are sold either directly to retailers or to sedentary wholesalers who are sometimes between collector-wholesalers, itinerant-wholesalers and retailers. The same people generally play the role of collector-wholesalers and itinerant wholesalers.

At the level of wholesale markets, prices vary so much that it is very difficult to accurately give the selling prices of string bags of different sizes. Time also influences prices, as the market runs from 4 am to 10 am to allow retailers with enough time to move to their business places. Hence, as the market does towards its end, sellers often find themselves compelled to review their prices downwards in order to avoid returning home with the fruit or allow them to a "Katika", given the perishable nature of the plum.

It should be noted that in times of scarcity, Njombé-Pénja plums are expensive and it is difficult to sell in urban areas where the market is dominated by plums coming from other production basins experiencing abundance. They are therefore sold locally or delivered as part of special command. The mismatch between the periods of production of the plum in the different basins explains the fact that the period of scarcity at the level of retailers and embers in urban areas is different from that of the Njombé-Pénja production area.

Results in table 5 show that the gross margin of the collectors-wholesalers is greater than that of the itinerant

Table 6: Gross margins of urban retailers and embers during the period of abundance.

Actor	Plum size	Buying price	Selling price	Margin
	Big	25,000 to 30,000	45,000	15,000 to 20,000
	Medium	15,000 to 20,000	42,000	22,000 to 27,000
Urban Retailer	Small	9,000 to 13,000	30,000	17,000 to 21,000
	Big	25,000 to 30,000	45,000	15,000 to 20,000
	Medium	15,000 to 20,000	33,750	13,750to 18,750
Urban ember	Small	9,000 to 13,000	30,000	17,000 to 21,000

Table 7: Gross margins of plum exporters for different periods and exporting countries.

Country	Period	Exporters acquisition cost (FCFA)	Exporters selling price (FCFA)	Gross margin (FCFA)
Neighbouring countries	Scarcity	45,000 to 60,000	70,000 to 80,000	20,000 to 25 000
	Abundance	25,000 to 30,000	50,000 to 60,000	25,000 to 30,000
France	Scarcity	45,000 to 60,000	100,000 to 120,000	55,000 to 60,000
	Abundance	25,000 to 30,000	75,000 to 85,000	50,000 to 55,000

wholesalers, and this may be because they buy directly from the producers.

Gross margins for traders who operate in urban markets

a) Sedentary wholesalers

Sedentary wholesalers sell their plums at the same market as collector-wholesalers and itinerant wholesalers from whom they buy the goods. They sell the plum at a slightly lower price than the retailers to allow them to have a gross margin of about 1,500 to 2, 000 FCFA.

b) Retailers and Urban embers

Retailers and urban embers buy their plums from the wholesale markets for retails throughout the city. For retailers, they sell five large fruits, eight medium fruits or 15 small fruits for 500 FCFA. The embers, resell the big plums at 100 FCFA per fruit, the medium plums at 50 FCFA and the small plums at 100 FCFA for three fruits. Knowing the number of fruits per string bag according to size, the sales prices and the margins are derived and areas shown in Table 6.

Results in table (6) show that margins between urban retailers and urban embers are virtually identical, except for medium-size fruits that have a lower gross margin for embers. It can be concluded that the evolution of the margins is not proportional to the size of the plum. These margins are higher than those of local retailers and local embers.

Margins in international trade for plums

For the export of plum, the string bags used have a size which is one and a half times that of the conventional string bags whose capacity is equivalent to a bag of fertilizer. Plums are directly collected from producers by exporters, then sent to the recipient countries, or collected by intermediaries and forwarded to exporters who are responsible for channeling them to the recipient countries. After purchasing plum, exporters move on to sizing; this method consists of storing plum into string bags according to their dimensions and choosing only the single colour fruits (black, green, blue, white, etc.).

The cost of acquiring a string bag calibrated by the exporters can vary from 25,000 FCFA to 30,000 FCFA during periods of abundance and from 45,000 FCFA to 60,000 FCFA during a period of scarcity. In times of abundance, the packet going to neighbouring countries (Gabon, Congo etc.) can be sold for prices ranging from 50,000 FCFA to 60,000 FCFA and from 70,000 FCFA to 80,000 FCFA in a period of scarcity. In France, in period of abundance the packet is sold between 75,000 FCFA and 85,000 FCFA and during scarcity, its price varies from 100,000 FCFA and 120,000 FCFA. These results are presented in Table 7.

It can be observed from Table 7 that the margins are higher for France than for the neighbouring countries of Cameroon. This might be due to the fact that, the greater the distance between countries, the higher the shipping costs, which leads to high prices at the destination.

Analysis of the margins according to the different circuits

Given that plums from Njombé-Pénja are absent in urban markets in times of scarcity, only data obtained during periods of abundance were taken into account to carry out this analysis. The margins obtained from the different categories of actors show that there is no significant difference between the retailers gross margins and the embers. It should also be noted that the absence of information on foreign wholesalers and retailers did not allow for export-oriented circuits such as circuits C, F and G. Table 8 shows the distribution of the total margins distributed to the intermediaries of the various circuits.

Table 8 shows that the gross margins distributed to the

Table 9: Margins for the different circuits and according to stakeholders.

Circuits	Fruits sizes	Gross margins of circuits
A= 4 intermediaries	Big	34,000 to 44,500
	Medium	47,000 to 57,500
	Small	42,000 to 49,500
B= 3 intermediaries	Big	32,500 to 42,500
	Medium	45,500 to 55,500
	Small	40,500 to 47,500
D= 3 intermediaries	Big	26,500 to 37,000
	Medium	31,500 to 42,000
	Small	23,500 to 31,000
E= 2 intermediaries	Big	25,000 to 35,000
	Medium	30,000 to 40,000
	Small	22,000 to 29,000
H= 1 intermediary	Big	7,500
	Medium	15,500
	Small	18,500

A= 4 intermediaries: collectors, itinerants wholesalers, sedentary wholesalers and urban retailers; B= 3 intermediaries: collectors, itinerants wholesalers and urban retailers; D= 3 intermediaries: collectors-wholesalers, sedentary wholesalers and urban retailer; E= 2 intermediaries: collectors-wholesalers and urban retailers; H= 1 intermediary: rural retailers.

various circuit intermediaries decline as the length of the circuit declines. This observation confirms the claim that the additional costs due to the length of the circuit are supported by the consumer; because knowing that the producers' selling prices do not change whatever is the route through which the plums transits, these variations can only be due to variations in the purchase price of the consumers.

Constraints faced by plums traders

Given the perishable nature of plum, most post-harvest losses are due to rots that have several causes. Silou (1994) confirms that the short lifetime of plum is undoubtedly the greatest constraint to plum trade. Rots are usually caused by rainwater; and since it is a fruit whose production period fall during the rainy season, the management of this cause becomes very difficult. They can also be caused by poor harvesting techniques that often cause injury to the fruit, which is the starting point for rots. The second constraint is the unavailability of vehicles to ensure fruit evacuation. Sometimes, for various reasons, the expected vehicle does not come to transport the fruit; in this context, the possibilities of disposing of the products on time and avoiding losses are very low.

Also, the difficult accessibility of certain production areas does not favour the arrival of vehicles. The fruits are evacuated using motorcycles, thus slowing down the flow speed, which promotes losses due to rot. The last constraint identified is lack of capital. Indeed, some traders deplore the lack of the means necessary to invest; hence, they are often forced to travel with limited stocks of merchandise while the market offers more opportunities. This may explain the fact that some end up forming teams; enabling them to be more active and present on the market.

Conclusion

The characteristics of the different actors involved in the marketing of the plum from the Njombé-Pénja production basin are: retailers, exporters, wholesalers, collectors, producers, multi-functional agents and Carriers. The average age of plum traders is about 36 years with a minimum of 20 years and a maximum of 60 years, and an average plum marketing experience of 9 years with a minimum of a year and a maximum of 40 years. Regarding the marital status, the collectors are either married or cohabiting and this is in equal proportion. Wholesalers are mostly single (66.7%), retailers have high marriage rate (51.4%). Exporters are young men generally at the cohabiting level. Multiple function agents are married (54.5%, cohabiting 31.8% and singles 13.6%.. It is observed that there are nine channels through which the Njombe-Penja plums transit. The shortest consist of zero intermediary and the longest consist of five (5) intermediaries. Unlike wholesaling where the gross margin increases with the size of the fruits; in retail, traders have a larger margin with small fruits. The gross margins distributed to the various intermediaries of the channels declines as the length of the channel decreases. The main constraints are the perishable nature of plum, difficult access to certain production areas and lack of capital. The State should improve on agricultural or farm roads in order to facilitate the rapid evacuation of the fruits.

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