

ARTISANAL COCONUT WATER BOTTLING: ALTERNATIVES OF SMALL PRODUCERS OF THE SÃO FRANCISCO VALLEY – BRAZIL

ENGARRAFAMENTO ARTESANAL DE ÁGUA DE COCO: ALTERNATIVAS DE PEQUENOS PRODUTORES DO VALE DO SÃO FRANCISCO - BRASIL

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Submetido em 22 de outubro de 2019

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Aceito em 11 de novembro de 2019

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Abstract

Coconut is recognized worldwide as a healthy and nutritious food. Most of its production is on the Asian continent. In the Americas, Brazil leads production, trading with distribution networks around the world. Northeast Brazil has a special highlight in this process. In the region are producers and distributors of great importance in the national scenario. The municipality of Petrolândia, located in Pernambuco, has an important role in this context for this state. With its production started in the late 1990s, it currently occupies the second position in the state ranking. Small producers have found in this scenario an opportunity for economic growth through the artisanal bottling of coconut water. The product has stood out geometrically in the local market and already represents an alternative for the economic growth of small producers. Some implications challenge the craft production of coconut water in the municipality, such as the performance of large producers, sanitary issues, tax and professional qualification to maintain their own business. The aim of this paper is to discuss the artisanal production of coconut water in the municipality of Petrolândia and its main impacts in the region. The research was conducted through bibliographic survey and fieldwork.

Keywords: Semi-arid; Small-scale production; Fruit production; Irrigation

Resumo

O coco é mundialmente reconhecido como um alimento saudável e nutritivo. A maior parte de sua produção encontra-se no continente asiático. Nas Américas, o Brasil lidera a produção,

comercializando com redes distribuidoras do mundo todo. O Nordeste do Brasil tem especial destaque nesse processo. Na região encontram-se produtores e distribuidores de grande importância no cenário nacional. O município de Petrolândia, localizado em Pernambuco, tem um importante papel nesse contexto para o Estado. Com sua produção iniciada no final da década de 1990, figura atualmente na segunda posição no ranking estadual. Pequenos produtores têm encontrado neste cenário oportunidade para crescimento econômico por meio do engarrafamento artesanal da água de coco. O produto vem se destacando geometricamente no mercado local e já representa uma alternativa para o crescimento econômico de pequenos produtores. Algumas implicações desafiam a produção artesanal da água de coco no município, como a atuação dos grandes produtores, as questões sanitárias, fiscais e qualificação profissional para manutenção do próprio negócio. O objetivo deste artigo é discutir a produção artesanal de água de coco no município de Petrolândia e seus principais impactos na região. A pesquisa foi realizada por meio de levantamento bibliográfico e trabalhos campo.

Palavras-chave: Semiárido; Pequena produção; Fruticultura; Irrigação

1 Introduction

Coconut is recognized worldwide as a tasty product and is considered one of the most nutritious. Its production has reached greater prominence in the global scenario, after debates about sustainable lifestyle.

In the American continent, Brazil leads the production of coconut, trading with distribution networks around the world. The Northeast region has special prominence in this process. It is in this location that there are large producers and distributors on the national context (CUENCA, 2016)

The municipality of Petrolândia, located in Pernambuco, began in the late 1990s the production of coconut. The proximity to the São Francisco River and to irrigation systems favored the cultivation of the product in resettlement centers managed by the Vale do São Francisco and Parnaíba Development Company (Codevsaf) (GUNKEL; SOBRAL, 2007). Soon, coconut became the main cultivation developed in the municipality.

Investments in this new approach had the objective of reaching the national market either in the natural or industrialized format, through plastic bottles or in tetra pak packaging.

Local production was very successful, making the microregion the second largest producer in the entire São Francisco River valley. Coconut, besides being a product well adapted to the taste of

Brazilian population, has several gastronomic, aesthetic and medicinal purposes. Thus, several agribusinesses and middlemen began to buy coconut from Petrolândia and to distribute it in several commercial networks in the national territory.

Given the success of the production, small producers decided to invest in artisanal bottling of coconut water. The measure was well accepted in the regional market, due to the cost benefit to producers and consumers, becoming an alternative to small production in the face of a crisis scenario.

2 Coconut Production and Industry

About the origins of coconut trees (*cocos nucifera*) there is no consensus among experts. There are authors who claim that the original place is located in the pacific islands of Asia; however, for some other authors its emergence is in the American continent. Coconut trees have been reported on the Asian coast for approximately 4,000 years (BONDAR, 1939).

The world's five largest producers hold about 80% of the world's coconut production. Indonesia alone contributes almost 1/3 of this share. Brazil has a 4.7% contribution (Table 1) (FAO, 2015).

Table 1 – Harvested area and coconut production of the world's top five producers in 2014

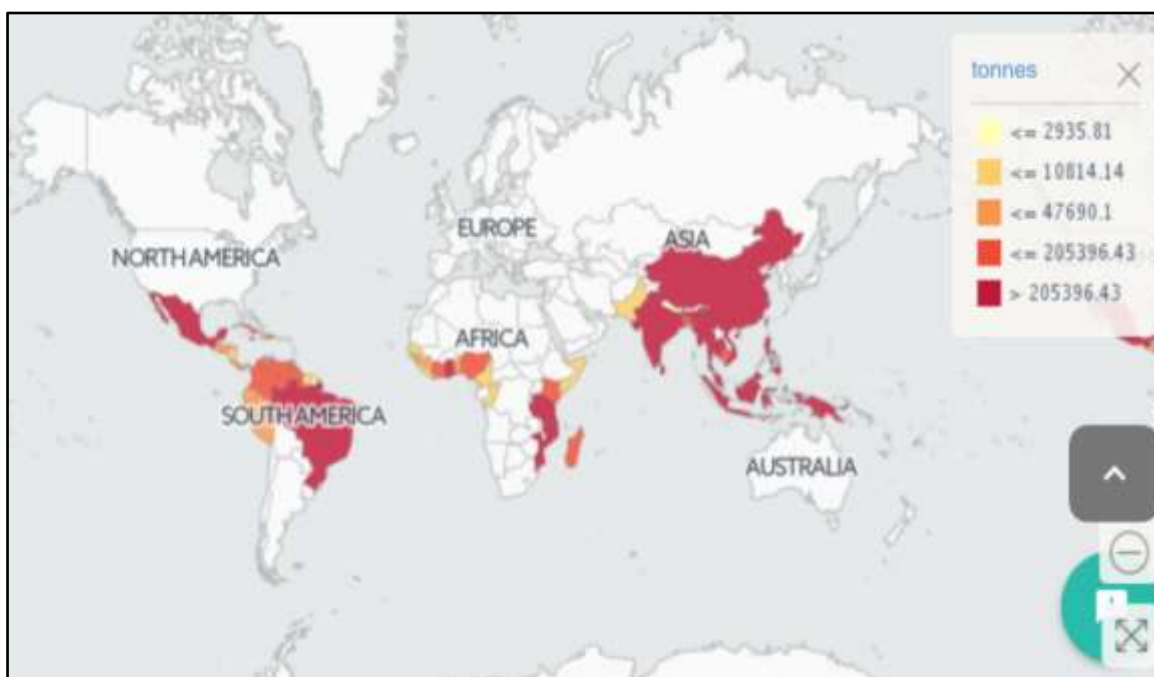
<i>Countries</i>	<i>Harvested area (million hectares)</i>	<i>Production (million hectares)</i>
Indonesia	3.087.770	19.102.130
Philippines	3.502.011	14.696.280
India	2.140.000	11.078.873
Brazil	250.554	2.919.110
Sri Lanka	394.836	2.181.000
Total	9.375.171	49.977.393
World	12.038.381	61.440.691

Source: FAO, 2016

Among the top five producers, Indonesia also leads in the ranking of marketing. In 2013, the country exported 231.040 million tons of coconut, India traded 72.539 million tons, followed by the Philippines, with 2.991 million tons, and Brazil with 20 thousand tons. These countries are not only producers, but importers as well (FAO, 2015). There are cases where local supply does not match market demand. In this sense, countries are looking to their neighbors for a way to increase their supply to ensure the consumer market. This occurs with some Asian countries; meanwhile in Brazil, even being a good producer, also imports this commodity (ARAÚJO, 2018).

Coconut is currently produced in approximately 90 countries located in the tropics (Figure 1). Brazil, in the last decade, has entered the group of the largest producers in the world, currently occupying the fourth position, behind only Indonesia, the Philippines and India, and followed by Sri Lanka (Table 1). Asian countries are the largest coconut producers in the world (FAO, 2015).

Figure 1 - Location of coconut producing countries

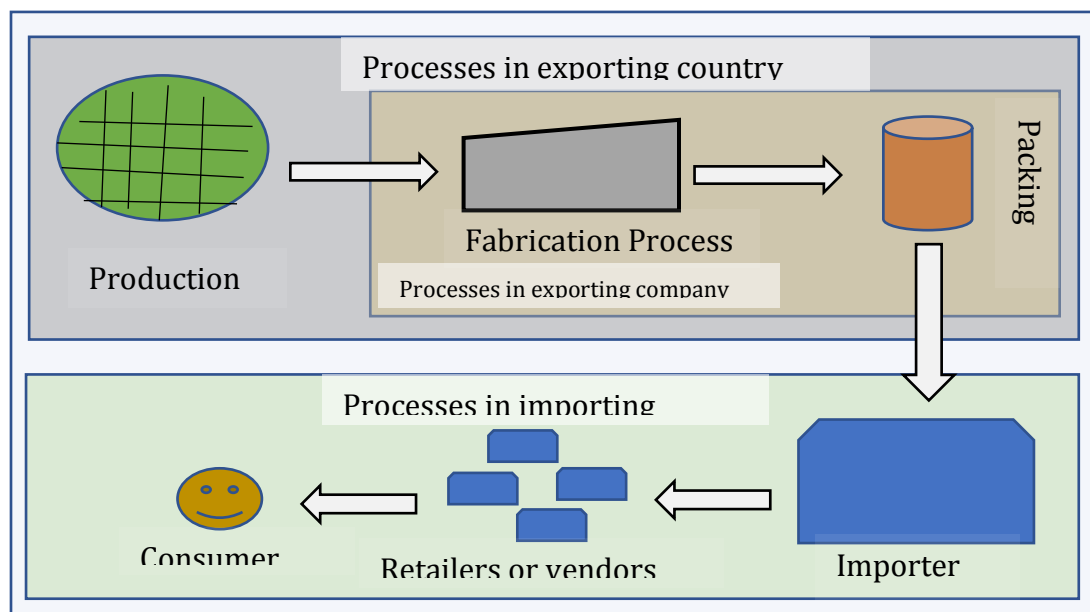


Source: FAO, 2015

Most of the Asian production is taken to European and North American countries. As shown in Figure 2, coconut is usually bought locally in the producing country, and starts the process of packaging in order to spend a long period of transportation. Foreign companies such as Morgenland, K Fresh, Pearl Royal, Kulau, GoCoco, Voelkel, Dr. Goerg, Tropicai, Vitacoco, Dr. Antonio Martins, among others, commercializes the product, to finally go to various supermarket chains in Europe or North America (ARAÚJO, 2017).

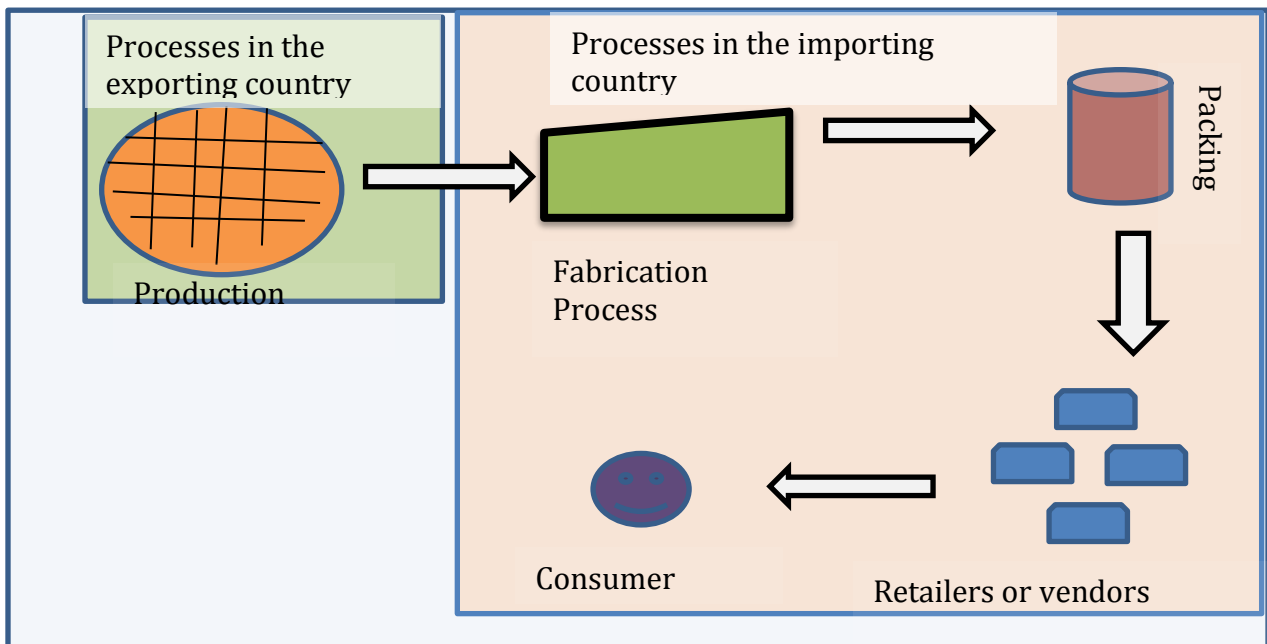
When it comes to coconut derivatives, such as oil, milk, syrup, sugar or flour, the production process is restructured geographically (Figure 3). In this case, importers carry out the production near their headquarters. Hence, many non-coconut producing countries have become major producers of derivatives (ARAÚJO, 2018).

Figure 2 - Commercialization chain of coconut water on a global scale



Source: The Author

Figure 3 - Global commercialization chain of coconut oil



Source: The Author

3 Coconut Production in Petrolândia

The municipality of Petrolândia, located in Pernambuco semi-arid, northeast of Brazil, began its production of coconut during the 90s. Due to the high demand in the national market, farmers changed their old production of banana, watermelon and beans to this new commercial product. Its trade is usually done using the fruit *in natura* or at the youngest edible stage.

Coconut production is an important source of employment and income growth in the Itaparica region. The municipality of Petrolândia has a leading role in the microregion, being the second largest coconut producer in the state of Pernambuco, followed by the municipality of Petrolina (Table 2), which is a consolidated fruit farmer, with coconut production representing 2.53% in the total of the national production (MARTINS; JESUS JUNIOR, 2011).

Table 2 – Planted area and amount of coconut produced per year in Pernambuco, Petrolina and Petrolândia

	Planted area (ha)	Annual quantity (fruits)
Pernambuco	14.237	129.822
Petrolina	1.800	72.000.000
Petrolândia	1.100	44.000.000

Source: SINDCOCO, 2017.

Coconut is harvested between 35 and 45 days, which is of great interest to small farmers; therefore, it is not necessary to wait a season or longer to renew the rent. Local farmers claim that this production method is very good for organizing the family's financial life, thus ensuring the monthly income.

Coconut is sold to middlemen and industries for a paltry price. As a result, most producers do not earn enough income to continue living in resettlement. Associated with other factors, some prefer to sell their lots to pay off debts (MARTINS; JESUS JUNIOR, 2011).

The municipality of Petrolândia has a large consumer market for fresh coconut water. Due with this opportunity, small producers began the strategy of bottling this water. Marketing of this product has grown in the local market (ARAÚJO, 2018).

The producers claim that the rise of the bottles is because they have no preservatives or chemicals. Coconut, which is undervalued in the market, can be traded for the same value as standard coconut.

Consumers also prefer the ease of transport and the cost benefit, since a bottle has 400ml and costs up to R\$ 3.50 and green coconut costs about R\$ 2.00 and has an average of 300ml. However, when well grown, a coconut can reach 500ml (ARAÚJO, 2018).

The trade in bottled coconut water has grown geometrically in Petrolândia. Local production is not yet sufficient for the demands of the municipality. Companies from other cities and states are inserting their products in the Petrolândia trade.

The municipality produces coconut for three purposes. The main product is coconut water, which is marketed fresh, that is, it is consumed directly from green coconut. This product is also marketed with other states, mainly capital cities of the Northeast and Southeast of Brazil.

Coconut water is also produced for exports. In this case, the main product is sold in liters, unlike *in natura*, which is sold per unit. This product goes to regional agro-industries, such as Paraipaba Agroindustrial, Dicoco, PepsiCo, Serra Coco, Frysk, Sococo where they go through an industrialization process, which corresponds to pasteurization, sanitation and later to be packaged in tetra pak packaging (ARAÚJO, 2017).

Agro-industries develop a more specialized service, with a high level of technology and professional qualification. For example, Paraipaba Agroindustrial performs only the pasteurization process and sends coconut water in 1,000-liter bags¹ to its headquarters located in the city of Paraipaba, in the state of Ceará, where the process is finalized for export.

The third purpose of coconut water production in Petrolândia is for local marketing in 300ml plastic bottles. This production occurs with simple processes, and without large installations. Anyone is qualified to do this type of bottling, as no professional qualification is required. Some producers perform this process by hand in their own home.

4 Artesian Bottled Coconut Water

Local marketing of bottles began in the late 1990s, when farmers in the region, inspired by experiences elsewhere, realized that they could take advantage of coconut that has a non-market

¹ It corresponds to a plastic packaging capable of storing 1,000 liters of coconut water and maintaining the appropriate packaging conditions to be transported to the company sector responsible for the process sequence.

appearance in a differentiated niche, where it would be marketed at the same price as valued coconut because of its aesthetic standard.

*RC Distribuidora de Coco*² was the first company to carry out the *in natura* filling process; later on, other companies entered into this fabrication. Currently, this is an important market for the municipality, due to its high consumption and being a source of employment and income. Its supply is still below demand, favoring companies from other municipalities that have already entered the local market.

Fresh coconut is very large and heavy compared to bottles; therefore, some producers have started this strategy to add value to their product. Thus, the bottles became an attraction in the dynamics of local commerce.

The value of coconut water in a plastic bottle is higher than that of coconut sold fresh. In the first case, the values can reach R\$ 2,50 and, in the second case, R\$ 1,20 in the summer, while in winter the value of fresh coconut can fall up to R\$ 0,25 and the value of the bottles remains (ARAÚJO, 2017).

The costs with the bottle are approximately R\$ 0,50 plus the production values, which is approximately R\$ 0,25. As a result, many producers prefer to market bottled coconut water. There are also a large number of producers who do not have this interest because they do not want to have extra work. For these, the profit from the sales of the product *in natura* would already be sufficient.

Looking at this scenario, it is noted that coconut water is more expensive than the fruit itself, including the most exploited product - coconut water. However, coconut alone has a much higher added value than its water. All the components of the fruit can be used such as fiber, rind, copra, inner shell, etc. From this parts could be created various products like oil, flour, charcoal, sugar, spices, vinaigrette, and snacks, among others.

² The company name is the abbreviation of Ricardo Caramelo, the owner. RC Distribuidora de coco is one of the only ones still in the market after the intervention of the Ministry of Labor and Adagro.

Yet, farmers do not consider these possibilities. The fruit is being marketed for a value far below its market potential. Producers can also harness this potentiality so that they perform the necessary processes and bring these new products to market (ARAÚJO, 2017).

In this perspective, it is observed that the lack of utilization of the value added to coconut brings negative consequences for the producer, since the farmer loses the possibility of increasing his income and having an extra product to be traded in winter, when the price of coconut only covers production costs, or coconut values would become too high to compensate for the loss of non-production of other consumer goods.

From an environmental point of view, the use and commercialization of other parts of coconuts could avoid the negative consequences of random disposals of coconut shell. It could also contribute to stop the use of transportation of this waste to landfills, as the fibers, shell and other components would be used to manufacture new products for the coconut market.

5 Bottle Production and Marketing

In general, the production of a coconut in Petrolândia costs approximately R\$ 0,25. Small producers need manure, fertilizer, brush cutter and two fertilizer applications per month. For example, a producer of 2 hectares has approximately 400 coconut trees, which corresponds to 8,000 coconuts per month. For this case, the value of fertilizer plus pesticides is R\$ 1.000,00, added to the value of the application, which occurs twice a month and costs R\$ 200,00. Several producers need to rent a tractor and hire labor, which raises production costs (ARAÚJO, 2018).

Some producers make crop associations, for example, they produce sheep and coconut trees in the same space. In this way, there are no costs with a brush cutter, because sheep perform the “function” of mowing. Thus, some farmers claim that the costs of coconut production are not high; the biggest problem is in the commercialization value, whether it will be enough or not to cover the expenses.

The summer period is the best time in terms of values. For example, in January the value of coconut is R\$ 0.70, but in the winter this value drops to R\$ 0,25. Usually, the devaluation period starts

in May and continues until September, when a warmer season begins and the demand for coconut increases. Still, coconut is marketed throughout the year, even during the devaluation period, since the permanence of the fruit in the coconut tree favors the emergence of pests, according to information from producers in the municipality (ARAÚJO, 2017).

Commercialization takes place in a variety of ways, the most common being purchases made in the lot, when the buyer with his team makes the extraction and counting of coconuts. In this case, the negotiation occurs in this place, after the extraction. Another way is when the negotiation occurs off the lot, where the buyer chooses the coconuts already arranged in a truck. Therefore, it is up to the farmer to perform the extraction of coconuts, which implies a higher cost, depending on the value of labor to extract the product. In the first case, the value of coconut already implies the cost of labor (ARAÚJO, 2017).

In early 2016, the Ministry of Agriculture banned the marketing of plastic bottles, alleging the lack of infrastructure related to the health of the product. As a result, marketing has been reduced to a large extent, only some producers trade, some illegally, and one company has already received the license from the Ministry. Some producers believe that the largest companies in the municipality, such as Dicoco, Paraipaba Agroindustrial, PepsiCo, Serra Coco, have requested these agencies to rigorously supervise bottle products (ARAÚJO, 2018).

Large companies that produce pasteurized coconut water add preservatives and then fill the product in tetra pak packaging. However, the taste is not the authentic coconut, it undergoes a transformation due to pasteurization process, which is not accepted by the local population. Consequently, large companies could not market their product in the municipality. The coconut water in plastic bottles is more prestigious in the community, because they are bottled directly from the coconut, without going through the process of pasteurization and preservatives, thus maintaining the original coconut flavor.

Major corporations sought to eliminate competition with small businesses. In this way, they were able to start marketing their product in the municipality and are trying to force consumer acceptance into a taste of coconut water that does not correspond to the natural standard.

The coconut tree requires a lot of water, which is easily found in the region due to the São Francisco River and Itaparica reservoir. Some products, such as beans, onions, bananas or watermelons, can be produced in greater quantities than coconut, yet it has not caught the interest of most farmers, who prefer to grow coconut because of the greater economic return. In addition, biomass is also supplied to maintain soil properties. Coconut fibers are used to protect the soil from erosion and to prevent excess moisture. Some farmers burn biomass to use ash potassium as fertilizer (ARAÚJO, 2017).

Some producers claim that current municipal production is not sufficient to supply the local market. In this case, there is space for opening new small factories of artesian bottled coconut water.

With the bottles, the producers themselves have greater control over their profit rate since they are able to negotiate better the price of their product in the market, which is not the case of the coconut producers that are in constant pressure of the determinations of middlemen.

Several farmers believe that investing in coconut water bottling brings greater returns in the short term. Producers claim that bottled coconut water saves time and space. Since this product does not require a lot of storage space and transport is easier compared to green coconut which needs more space during disposal to the consumer market, besides the cost benefit, which is more advantageous than coconut *in natura*.

The coconut water consumer market in Petrolândia is quite expressive; the population is already adapted to the purchase of coconut water in bottles. This is not common in other Brazilian cities. The consumer is interested in coco *in natura* because it has a lower risk of fraud.

However, most face some problems in setting up their own business due to the high costs of factory construction, materials, staff maintenance, and project management. These high costs to build a small factory are one of the main factors that discourage farmers. Sanitary requirements and environmental licensing are also a major implication in this processed of building a company.

In order to remain in the standard required by the inspection agencies, it is also necessary to pay high monthly fees that make it impossible for small farmers to enter this scenario. There are also market risks, since as coconut water is 100% natural, with no added preservatives or any kind of

chemical element; the product is valid for eight days. If not consumed during this period, it must be returned to the producer.

Some small farmers have acquired the equipment needed to craft bottling. As it does not require preservatives or any additives, the process is simple and easy, allowing any small producer to invest in bottling. However, not everyone can stay in the market because production costs are still high in relation to the demand offered. There are producers that were not able to adapt to the sanitary and environmental standards. They had to stop production, while some others also stopped producing because they could not get enough return to cover the expenses.

The bottled coconut water market needs to be further explored and producers need to receive larger investments to produce on a large scale that meets municipal demand. The formation of associations or cooperatives to contribute to the organization of farmers as well as their marketing process is a great need.

6 Final Considerations

Coconut production emerged in the late 1990s in the municipality of Petrolândia in order to reach the national market and provide regional economic growth. Soon the microregion became the second largest producer in the state.

Petrolândia coconut, besides being marketed by the main agribusiness in the country in tetra pak packaging, has significant local distribution through small plastic bottles produced by small business.

This scenario has provided hope for several farmers, who live in dependence on *in natura* middlemen. The bottles represent a relevant cost benefit, besides being well accepted in the local market.

Small producers encounter several challenges facing large producers, in addition to the difficulties inherent in the process. Greater investment is needed in technical training of small producers, as well as tax facilitation and access to bank credit, with a view to expand the market and sustainable production of small local manufacture of coconut water bottles.

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