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Debates sobre quién, cómo y con qué implicaciones sociales, económicas y ecológicas alimentará el mundo.

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Decent Work in Global Agricultural Production Systems: an interdisciplinary conversation

Walter Belik, Thales Augusto M. Pehna & João Matos Filho

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Decent Work in Global Agricultural Production Systems: an interdisciplinary conversation

Walter Belik, Thales Augusto M. Penha and Joao Matos Filho

Abstract

This paper presents the historical evolution of fruit exports from Northeastern Brazil to European supermarkets, and traces the ways in which the coordination of this flow impacts workers and the labor process. Fifty years ago, the Brazilian military government promoted significant public works projects to bring irrigation to the semi-arid Northeastern region. Within in a few years, this region had become the country's largest fresh tropical fruit exporter. Although native companies and farmers' cooperatives dominate commercial negotiations for fruit production, logistics and distribution in Europe are controlled by independent or supermarket-connected trading companies. A variety of certifications, some related to labor relations, are required to participate in these markets. On one hand, the certification requirements have helped trade unions to achieve improved working conditions and respect for workers' rights. On the other hand, certification audits brought new and unbearable costs to small and medium farmers, thus promoting a huge concentration in fruit supply. Furthermore, production standardization has reduced the share of value-added retained by workers in these crops. Calculations made for melons traded in the UK show that workers received less than 5% of the final selling price for the whole fruit. When the melon was sold in slices, the proportion of the final price retained by workers fell to less than 1%. Keywords: Fresh Fruit Exports, Developing Countries, Rural Development

Introduction

The production and commercialization of food involves unique challenges in terms of coordination and organization, and as a whole, these processes form what some authors have referred to as a World Food System (WFS) (Bursch et al., 2005). These

authors also note that the WFS underwent two profound transformations over recent decades. Firstly, there was significant change in the global demand profile due to shifts in consumer preferences toward sustainable production practices from an ecological standpoint, and toward healthier options from a nutritional standpoint. This trend was correlated with recent generalized increases in income, which allowed for the expansion of family food budgets in absolute terms (Funcke et al., 2009). The second transformation in the WFS reflected changes in the characteristics of food supply resulting from the appearance of new agents along the value chain, which promoted the popularization and commercialization of some products that were previously considered niche markets with small

geographic bases of production and little interest from the food industry. This last process owes its origin to the expansion of national economies and to advancements in IT and post-harvest technologies that allow for longer shelf-lives for fresh foods (Wilkinson, 2008; Silva, 2001; Raupp, 2010; Belik et al., 2007; Friedmann, 1993; Marinozzi, 2000).

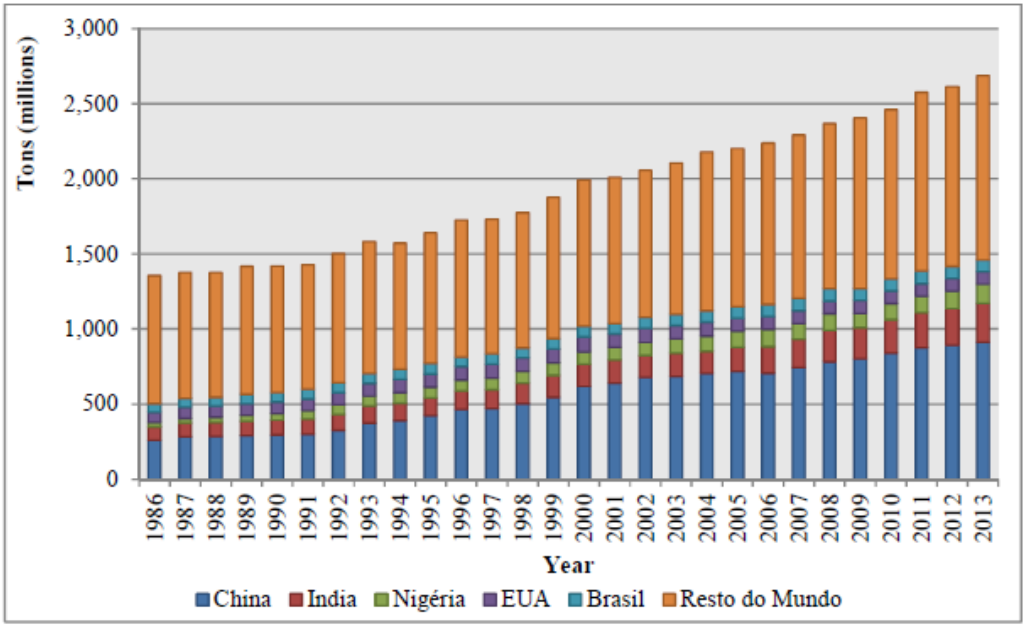
The opening of new production areas to international markets had a considerable impact on the WFS beginning in the 1970s. Newly Agricultural Countries (NACs) introduced new products, including fruits and vegetables (FV), and established direct links with consumer markets, which came to value year-round access to fresh foods (Silva, 2001; Graziano da Silva, 1998). Counter-seasonal production had an enormous impact on domestic consumer markets, incorporating new consumer demographics and contributing to a shift in eating habits in developed countries (Silva, 2001).

Worldwide, fresh fruit consumption grew sharply during the 1980s, and even more rapidly during the 1990s. Between 1995 and 2003, worldwide fresh fruitconsumption per capita increased by 13% as a result of growing demand (Funcke et al.,2009). Nevertheless, the most significant expansion in fruit consumption occurred between 2002 and 2005, during which time the global market grew by 53% due to increased consumption of products from tropical regions, and especially from Latin America and the Caribbean, whose products had previously been considered exotic and inaccessible (Funcke et al., 2009). Beyond changes in product origins and markets, recent decades also brought transformations in production methods similar to the flexible production observed in industry.

Analyzing the consequences of these transformations in the WFS, it is clear that, during recent decades, the FLV sector presented one of the highest rates of growth in commercialization. Another important factor in the expansion of international trade in the FV sector was the reduction in barriers to trade and increases in market integration, which permitted the expansion of consumer markets for these products (even when they are locally out of season) (Wilkinson, 2008).

Brazil is among the five largest FLV producers, behind China, India, Nigeria, and the United States. These countries have increased their participation in global FLV supply over recent decades (from 37% of global supply in 1986 to nearly half of global supply in 1998). This significant increase in market participation was due, in large part, to the increased participation of China and India in this sector.

Graph 1 – Global FLV Production

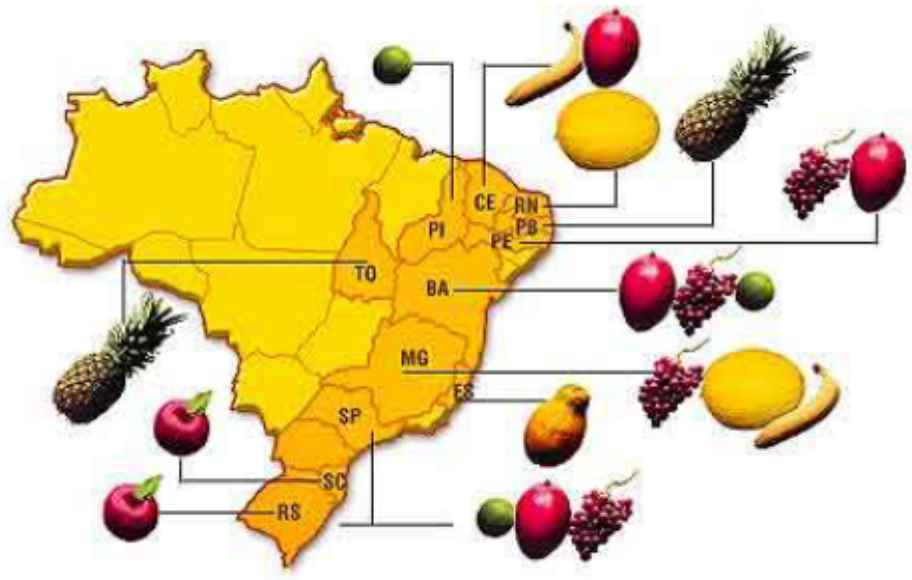


Source: FAOSTAT (2015).

It is interesting to note that, in the context of international trade, the main FV producer countries do not appear among the list of largest exporters (with the exception of the United States), suggesting that FV production in these countries (China, India, Nigeria, and Brazil) is largely destined for domestic markets. This phenomenon causes the ranking of top global FV exporters to differ significantly from the list presented above.

Such is the case of Ecuador, where 30% of total FV production is destined for international markets, or Chile, another significant exporter with a small domestic market. In recent decades, nearly all products within the FV sector experienced growth in levels of trade. Nonetheless, tropical fruits (papaya, kiwi, melon, mango, and pineapple) presented rates of expansion well above those of other categories. These products only recently began entering the diets of consumers in high-income countries, and have experienced growth rates much higher than those of more traditional FVs such as apples, grapes, and even bananas (a tropical product with a longer history of commercialization). With the introduction of new fruits and the consolidation of their related markets, Brazil has gained a greater role in FV trade over recent decades. This growth process was intimately linked to the emergence of specialized production areas within the country, and in particular in the irrigated fruit producing regions of the Northeast. Since the 1990s, Brazil's Northeast already appeared as the principle area of national fruit production, a distinction which only increased further during the 2000s when Brazil experienced a further boom in fruit production, propelled primarily by the consolidation of irrigated spaces within those specialized Northeastern regions.

Figure 1 – Spatial Distribution of Fruit Produced for Export in Brazil



Source: Revista Globo Rural, 2003

Figure 1 above illustrates the central role played by Northeastern states in the FV sector. Piauí (PI), Ceará (CE), Paraíba (PB), Rio Grande do Norte (RN), Pernambuco (PE) and Bahia (BA) appear at the forefront of fruit production destined for international markets. This evolution in regional production was caused both by the new configuration of the WFS, and important internal factors which permitted the ascension of these production activities in the region (a theme which will be explored in greater detail in the following section).

The consolidation of the international market for FV played an integral role in solidifying the irrigated fruit production regions in the Northeast. In turn, the creation of this international market was made possible by the participation of new players along the FV supply chain–in particular, supermarket chains which claimed an expanded role in the commercialization and globalization of new products (Bursch & Lawrence, 2005; McMichael, 2007; Lang & Heasman, 2015). In consideration of these new developments, this study aims to analyze the role of these supermarket chains and wholesalers in the exportation of fruit produced in the irrigated regions of the Brazilian Northeast.

The study is organized as follows: Section 2 traces the structure of the fruit production process and production flow patterns in the irrigated regions. The following section analyzes the role of the principle Northeastern irrigated fruit producing regions (which are responsible for a majority of regional fresh fruit exports): the Açú-Mossoró and Petrolina-Juazeiro regions. In order to understand the relationship between supermarkets and producers, the study opts to focus its analysis on the Açú-Mossoró region. Thus, in Section 4, the production and commercialization of melon in this region are analyzed.

Fruit Production for Export in the Brazilian Northeast

Brazil's external debt crisis in the 1980s generated internal pressure to develop export sectors in order to improve the balance of payments. This pressure pushed Brazil towards greater participation in the World Food System as a primary products exporter. Among these products, fresh fruit destined for raw consumption (banana, pineapple, mango, grapes, melon, and papaya) have the highest value-added (Funcke et al., 2009). Brazilian fruit production for export is concentrated in areas of favorable climate and proximity to export markets, which makes the Northeast ideally situated. Within the Northeast, the most favorable fruit production conditions are found in the Petrolina- Juazeiro region, located within the São Francisco river basin, as well as the Açú-Mossoró region, located in the western part of Rio Grande do Norte state. Fruit production in Petrolina-Juazeiro is dominated by mango and grapes, while the Açú-Mossoró region is dominated by melon production.

Fruit production in the Brazilian Northeast was consolidated through the establishment of irrigated development regions, an important initiative given the semiarid nature of the region (subject to low levels of annual rainfall and intermittent drought). The creation of these development regions was effected through public investments, beginning concretely in the 1970s with the initiation of the Integrated Rural Development Plan (PDRI), which included the Polonordeste project. The objective of Polonordeste was to foster areas of dynamic production integrated with agroindustry and with national markets through the National Integration Plan (PIN), which in turn was focused on developing a series of public water works to reduce pluvial irregularity in the Northeast (Heinze, 2002). These public irrigation projects made possible, in only a few years, significant levels of agricultural and agroindustrial production.

The Petrolina-Juazeiro region began to specialize in fruit production after the successful installation of public water infrastructure under the aforementioned programs, which made it possible for producers to irrigate nearly 100,000 hectares in the region (Silva, 2001). Regional specialization is focused on table grapes and mango, with, respectively, nearly 99% and 90% of national exports coming from this region. The region exhibits a diversified commercialization structure directed towards both international and national markets (Cavalcanti, 1999). Major producers concentrate their efforts on mango and grape cultivation (especially seedless varieties), and target their products towards external markets. In turn, smaller producers generally limit their products to local markets, and cultivate a more diversified portfolio of products, including grapes, mango, acerola, banana, guava, and coconut (Castro, 2013).

The Açú-Mossoró region is characterized by its specialization in melon production, with nearly 12,000 hectares dedicated to the cultivation of this product (representing nearly 15% of the region's area). In terms of commercialization, small
producers direct their production toward public supply centers (CEASAs) and local markets, while large producers export nearly 80% of their production (Oliveira, 2011). The location of these two regions is illustrated in Figure 2.

Figure 2 – Irrigated Regions in the Northeast

a-) b-)

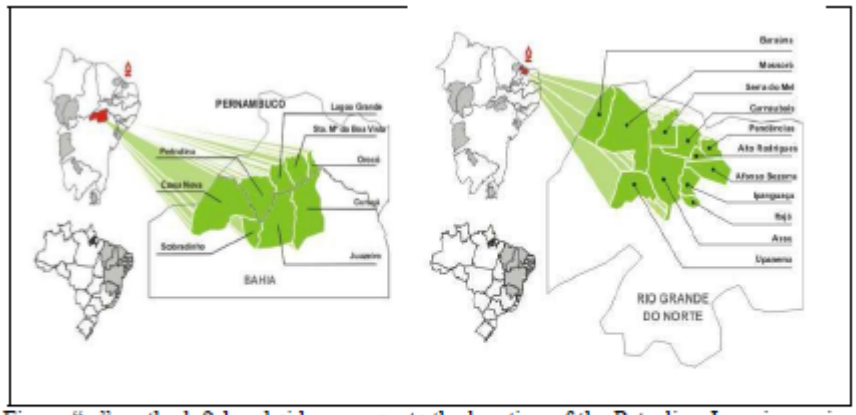
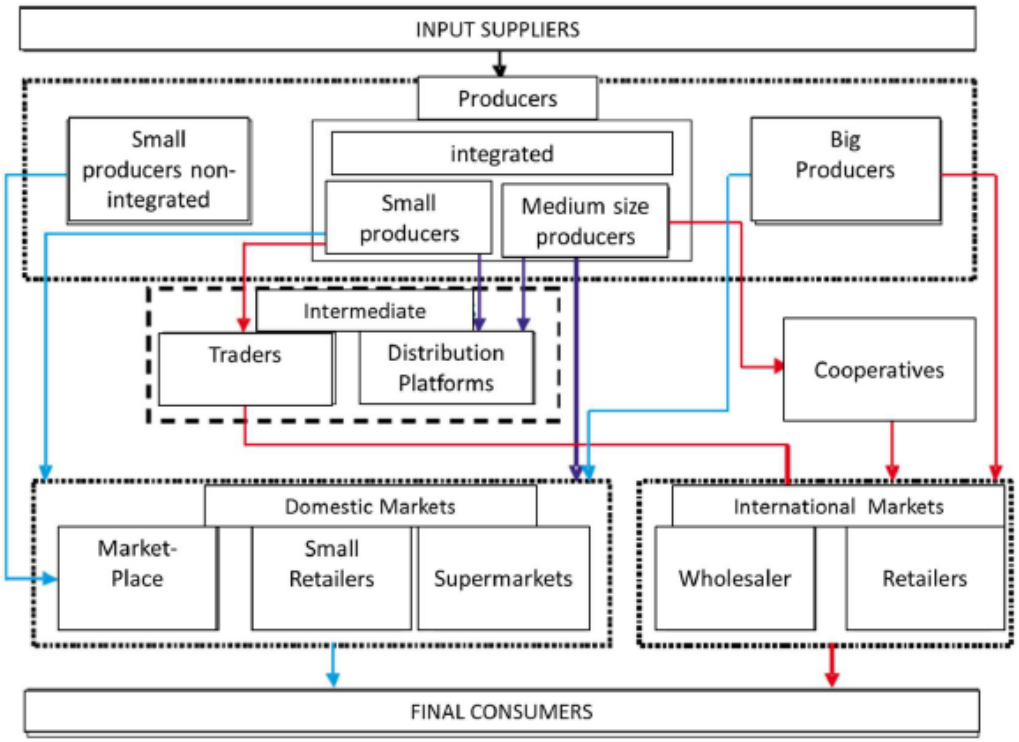


Figure "a," on the left-hand side, represents the location of the Petrolina-Juazeiro region and the cities which constitute it. Figure "b" on the right represents the Açú-Mossoró region and its respective municipalities.

Source: Ortega and Sobel (2005); Nunes (2009).

Over the course of recent decades, these two regions have specialized in the supply
of raw fruits for the international market, which has required a significant logistical effort to guarantee supply during off-seasons and thus take advantage of the window of opportunity which opens for southern producers during winter in the northern hemisphere. The organization of the regions within global supply chains involved action by a series of differentiated agents both upstream and downstream along the fruit production chain. Figure 3 illustrates the process by which this complex process was consolidated, and which agents are involved at each stage.

Figure 3 – Flowchart of the Fruit Production Process in the Irrigated Regions of the Northeast



Source: Velloso & Primo, 2006

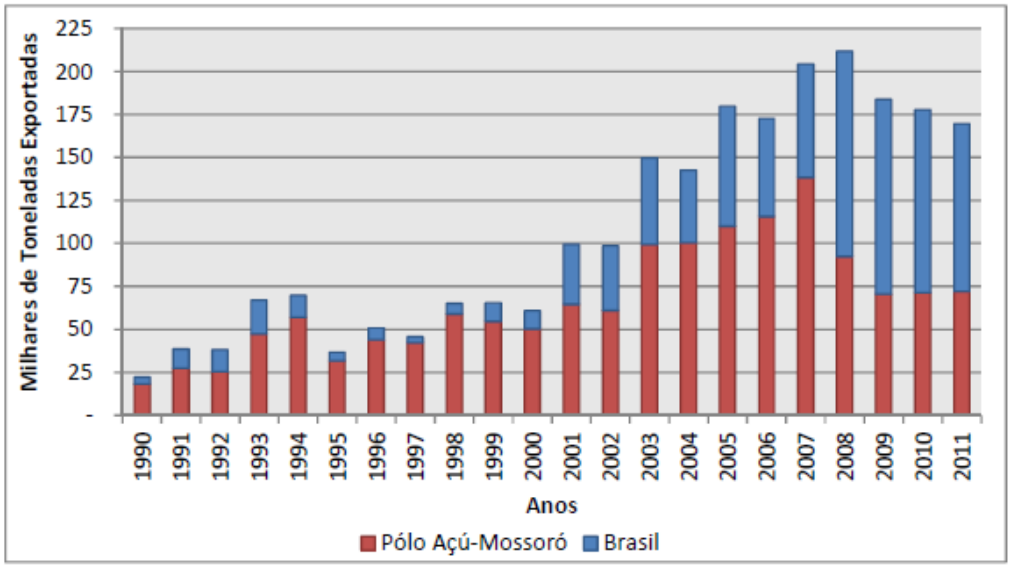
The diagram above indicates that, in general, there are three types of fruit producers in the irrigated regions, which subdivide themselves according to their size and the nature of their association with distribution channels. In the first place, there are a large number of small producers whose production is commercialized directly through local and regional fairs. Secondly, we observe small and medium producers who deploy more technologically-intensive production practices and make use of formal and informal contract relationships in order to commercialize their products through supermarkets and other distributors. In this case, fruits are produced individually by these producers and then directed to packing houses, or Distribution Platforms, where they are sorted, chilled, and packaged for transport to external markets or domestic markets in other regions of Brazil. Some medium-sized producers are linked through a commercialization cooperative that maintains a professionalized commercial structure focused on negotiating contracts and administrating cargo logistics. Lastly, large producers maintain their own commercialization structures and sell directly to wholesalers or to foreign supermarkets.

Fruit Production in the Intensive Production Regions of the Northeast

The international market is the primary destination of products from the Açú-Mossoró region. The trajectory of supply destined for international markets is illustrated in Graph 2. This supply exceeded 200,000 tons in 2008, then declined slightly in following years in response to the global financial crisis and structural changes within the producing region resulting from the exit of some firms from the market. Strong growth in national fruit exports has been propelled primarily by the Açú-Mossoró region, which, in some periods, accounted for 90% of all

melon exports from Brazil. Nevertheless, during the most recent triennial, the participation of this region in export volumes experienced a decline, due largely to the greater market participation of the neighboring state of Ceará. The ascension of Ceará in export participation is largely the work of the same firm which controls production in both states.

Graph 2–Participation of Açú-Mossoró Region in Brazilian Exports



Source: AliceWeb (2015).

According to the Brazilian Statistics Institute (IBGE, 2016), 7,103 hectares were planted with melon in the region in 2014, and just one company, Agrícola Famosa, accounted for approximately 80% of total production. The remaining share of production was constituted by a group of medium-sized producers and a few small producers.

The two principal fruit producing regions of the Brazilian Northeast present distinct and divergent characteristics. While the Petrolina-Juazeiro region and its primary activities (grape and mango cultivation) take advantage of public waterworks infrastructure and are organized in centralized, and irrigated plots, the Açú-Mossoró region (dominated by melon production) disperses production along territorial borders and has largely abandoned the public infrastructure core developed over previous decades.

The contrasting configurations of these two regions can be observed in the structure of landholdings, as synthesized by the Gini Coefficient (0.70 for the Petrolina-Juazeiro region and 0.79 for the Açú-Mossoró region) and by the size of landholdings (ranging from a minimum landholding of 1.5 hectares to a maximum of 600 hectares in the Petrolina-Juazeiro region, and from a minimum of 1 hectare to a maximum of 20,000 hectares in Açú-Mossoró). This difference is also explicit in the quantity of producers in each region, and by the greater extension of irrigated lands in Petrolina-Juazeiro, which has led to a greater concentration of producers. While there are nearly 2,000 grape or mango producers in the

Petrolina-Juazeiro region, the Açú-Mossoró region hosts less than one hundred melon-producing operations.

It is important to highlight that approximately 50% of producers in the Petrolina-Juazeiro region cultivate only one product, mango or grapes. In contrast, approximately 90% of producers in the Açú-Mossoró region specialize in melon cultivation. Thus, producers in the Petrolina-Juazeiro region have diversified their production portfolios to a greater degree. 46% of producers there have diversified their production, thus reducing dependency on these products (Penha, 2016).

It is worth noting that mango and grapes are permanent cultures, which immobilizes capital on the property and does not permit alterations in the production profile in the short-term. It is thus of great importance to these farmers to diversify remaining landholdings in order to minimize risks resulting from market volatility. On the other hand, in the case of melon production (a temporary crop), there is much greater flexibility and ease of relocating and recuperating investment more quickly than in the case of grapes and mango.

Both regions maintain direct relations with the certifications emitted by government inspectors, international regulators, and buyers. Nevertheless, in the Petrolina-Juazeiro region, only 20.6% of producers are certified by these external actors, indicating that downstream consumers of these producers' products are not highly demanding in relation to intangible product qualities that could only be guaranteed through credible certifications. This lack of downstream pickiness results in consequently low rates of monitoring on the part of certification agencies (just 27.7% producers of the region). Thus, in the Petrolina-Juazeiro region, quality standards are maintained to a greater degree through the application of prizes, which incentivize producers to produce fruits with characteristics desired by consumer markets. In contrast, incentives in the Açú-Mossoró region are coordinated by certifications and monitoring, which assure tangible qualities such as brix, appearance, and color, as well as aspects that are intangible at the transaction point.

This expanded monitoring role grants buyers increased control over the production system. On one hand, this allows buyers to mitigate information asymmetries that often exist between producers and buyers, reducing uncertainty about product quality (Akerlof, 1970). On the other hand, certification generates quasi-rents during the commercialization process, determining product values and allowing coordinating agents to appropriate greater shares of value-added. In this case, those agents include traders and supermarkets.

Penha (2016) demonstrates that two-thirds of producers in the Açú-Mossoró region sell melons on the international market. In contrast, only a few producers are inserted into international markets in the Petrolina-Juazeiro region (only around 20% of grape producers and 8% of mango producers). Owing to considerable transaction costs, the exportation of small quantities of these fruits is often unviable, creating a barrier-toentry for small producers, who constitute the great majority of actors in the region. This is the principle factor impeding producers in the Petrolina-Juazeiro region from participating in the international market.

In the two regions analyzed here, producers export fruits according to the terms of formal contracts signed with foreign firms. These contracts are necessary due to the high specificities of product quality, which would lead to prohibitively high transaction costs if negotiations were conducted on a case-by-case basis.

The characteristics of agents involved in negotiations vary when the two fruit producing regions are compared. In Petrolina-Juazeiro, contracts are typically signed with international intermediaries, and 43% of regional producers export products through these agents. Beyond these intermediaries, other international agents play important roles in these transactions, including retailer networks (to which 26% of regional producers direct their products) and major international wholesalers (which receive 23% of regional production) (Penha, 2016).

In turn, the principle agents involved in international contract negotiations in the Açú-Mossoró region are themselves international, including wholesalers, which handle formal commercial negotiations for 60% of regional producers. Following wholesalers, retailer networks handle 54% of transactions with melon producers in the region (Penha,2016).[1]

It is noteworthy that the Açú-Mossoró region exhibits a number of particularities in terms of production and commercialization of melon. Production is concentrated among a small group of agents, in large-part medium to large producers that direct production toward international markets, especially major retail chains and European wholesalers. These aspects indicate a unique trajectory that is analyzed in greater detail in the following section.

Melon Production in the Açú-Mossoró Region

Melon is a short-cycle fruit that allows for at least four production cycles per year. Its demand for water is very high, which makes access to this resource a critical determinant of property values. Properties must extract water from the soil for irrigation, making upkeep costs (equipment, depreciation, and electricity) very high (about US$75 per hectare). There is, however, no charge for the use of water, as it has been taken as a public good (Agrianual, 2016). Land costs were not considered in preliminary calculations. Given increased demand by consumers for high-quality products, large distribution retailers have assumed a greater role in the trade of fresh products at the international level.

Strong growth in the quantity of melon produced and exported occurred over the first half of the 2000s, reinforcing once again the impact of international markets on regional dynamics. However, from 2007 onwards there was a steep drop in the amount of melon produced, reflecting the first signs of the international crisis that spread around the world after 2007. This decline in crop production resulted in

[1] Percentages of negotiations do not sum to 100% because producers sometimes report that they conduct
negotiations with more than one type of producer on questionnaires. Consequently, the total reported percentage of negotiations does not sum to the percentage of sales, but rather to the percentage of producers that connect with any specific type of commercial agent.

the exit from the market of some agents, as well as a falloff in the total number of formal jobs in the sector. Recovery of the international melon market began only in 2012, despite recovery in production volumes as early as 2009. This change highlighted a new destination for regional melon production: the domestic market. Rising income levels across Brazil, and especially within the lower portions of the income distribution (as demonstrated in the study of Neri and Souza, 2012), had an important influence on domestic fruit consumption.

This increasing dynamism in the domestic market allowed some producers to redirect their production toward domestic consumption, thus softening the impact of the international crisis on their businesses. According to a study by Oliveira (2011), the flow of melon produced in the Açu-Mossoró region may be characterized as follows: small producers direct their production to central suppliers (CEASAs) and local markets, while large producers export approximately 80% of their yield.

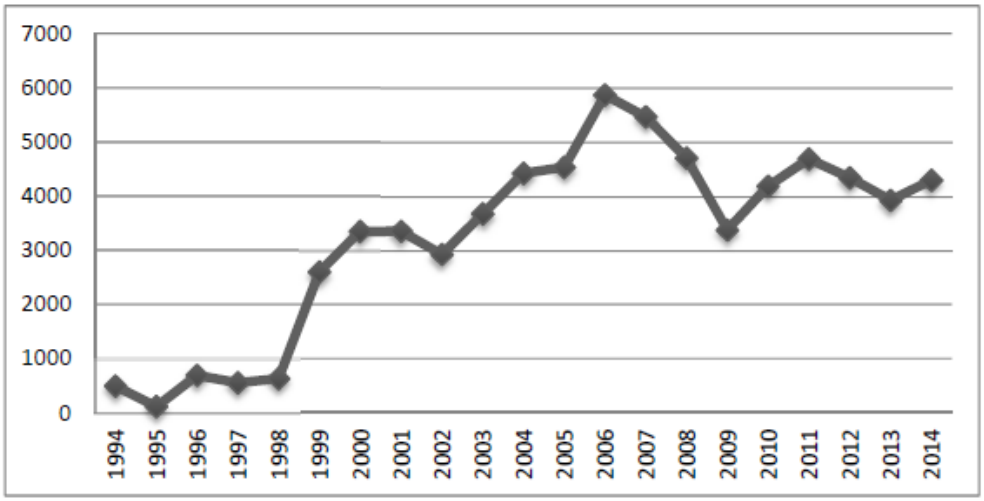
The changes in market composition resulting from increased demand from high income countries for fresh products had a direct impact on the coordination of agro-food commercialization. The new flexible model that producers have adopted calls for new forms of coordination in order to manage transactions costs between producers and buyers (Menard and Klein, 2004; Belik and Chaim, 1999; Wilkinson, 2008).

Melon cultivation in the region reached new levels of productivity during the 2000s, nearing 25 tons of melon produced per hectare. This value was substantially larger
than the 15 tons per hectare averaged over the previous decade.

This expansion in melon production impacted the region's labor market for melon-workers in a positive way. During the significant growth period of the 2000s, formal employment in the sector increased by 400%. Employment growth continued until
2006, at which point the international financial crisis hurt international melon trade and significantly worsened labor market outcomes.

Growth in the number of formal workers occurred during a period (1998-2000) in which the acreage dedicated to melon production in the region experienced a decline of 47% (see Graphic 3), indicating that there was not in fact an increase in the real quantity of workers, but rather a process of employment formalization by which workers who had formerly labored informally gained formal employment status.

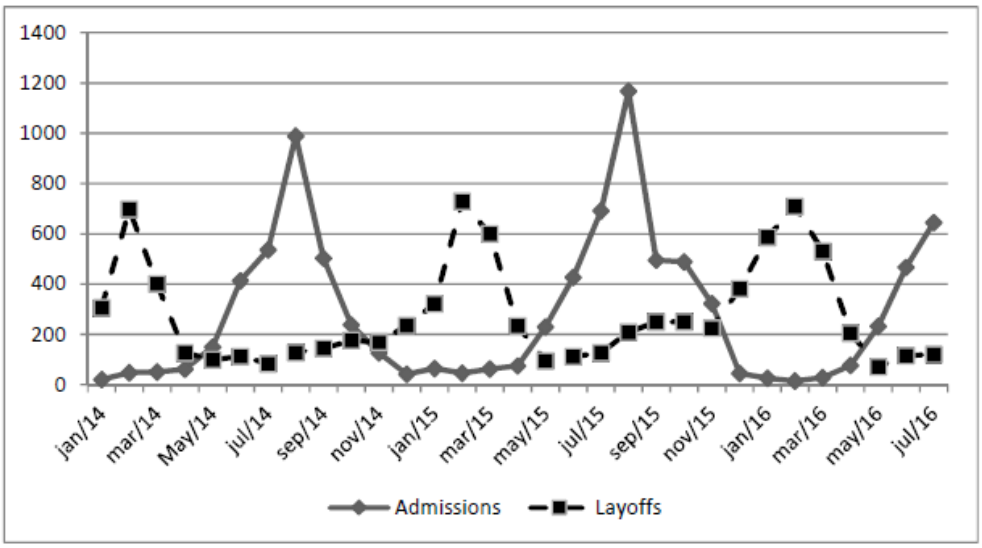
Graph 3 - Formal Employment in Temporary Crop Production in Açú-Mossoró Region (number of employees)



Source: RAIS / CAGED (2015)

It is noteworthy that this trend of increasing labor formalization corresponded with
a decline in total cropping area and growth in total regional yield, as shown in Graphic 3. These dynamics suggest that important technical advances in production techniques occurred during this period, allowing productivity to grow while production area and formal employment declined. These phenomena are in part a consequence of intensification in the application of labor-saving technologies, which reduced demand for workers, thus partially explaining the decline in labor demand over the years.
In spite of the overall increase in formal employment, annual employment continues to experience cyclical (seasonal) oscillations in hiring and layoffs. As illustrated in Graph 4, admissions and layoffs occur at specific times of the year. Hiring occurs primarily between the months of May and October, while layoffs occur between the months of November and April.

Graph 4 – Seasonality of Formal Jobs in Fruit Production in the Açú-Mossoró Region



Source: RAIS / CAGED

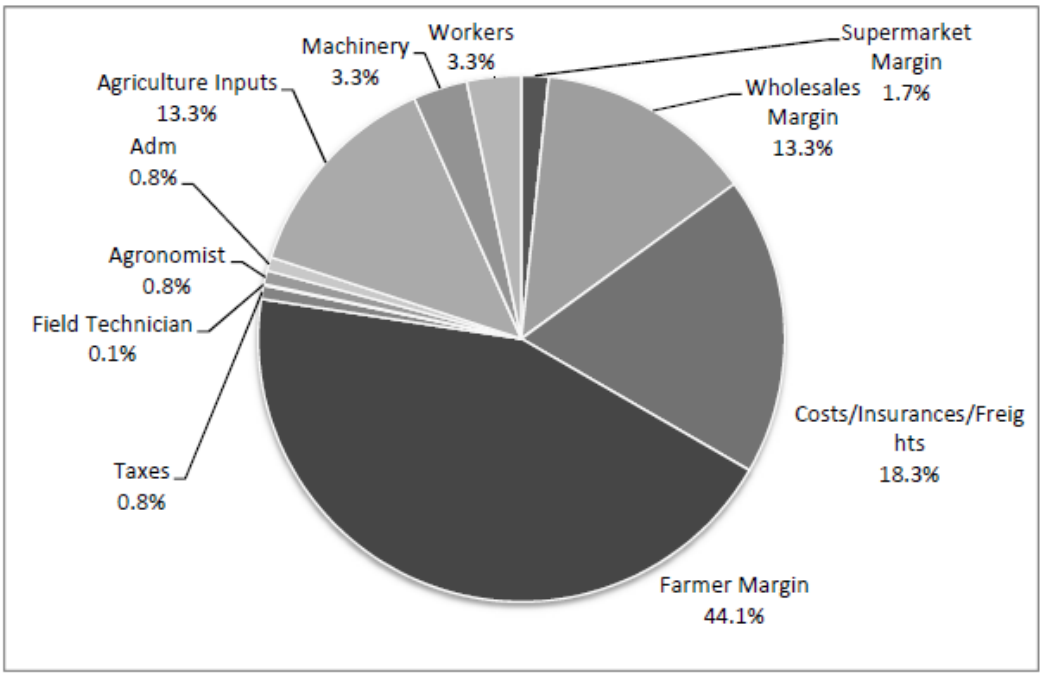
This cyclical quality of the region's melon labor market is the result of international market coordination. As reported by exporters, the supply of melons in European markets obeys the following schedule: from September to January, the Açú-Mossoró region is the main supplier; from February to April, Central America takes first place; from May to August, Spain, Israel, and Morocco are the main suppliers in the market.

Regarding the total costs of melon production and distribution along the value-added chain, this analysis found that 80% of total end-cost resulted from seeds (produced by the Syngenta company, and which ranged from US$2,000-6,000 per kg depending on the type of melon) and fertilizers. Seeds are not commonly planted directly on the field. Instead, they normally germinate in trays made of polystyrene or plastic, and are only later moved into the soil, thus improving seed germination.

Employment of field workers accounted for only 14% of total costs, making labor the lowest cost factor of melon production, comparable with the usage of machines (corresponding to 15% of production costs). This measurement highlights the trend of technology intensification in melon production, including the intensive use of agricultural machinery and agrochemical inputs, and illustrates the low value of labor in the production process.

In the case of whole melon, 66% of the final value is added on the farm (inside the farm's gate), and much of this value accrues to farmers as the producers' margin. In contrast, approximately 3% of total value-added is paid as compensation to workers (Graph 5).

Graph 5 - Value-Added of Fresh Whole Melon Sold in the UK, in US$

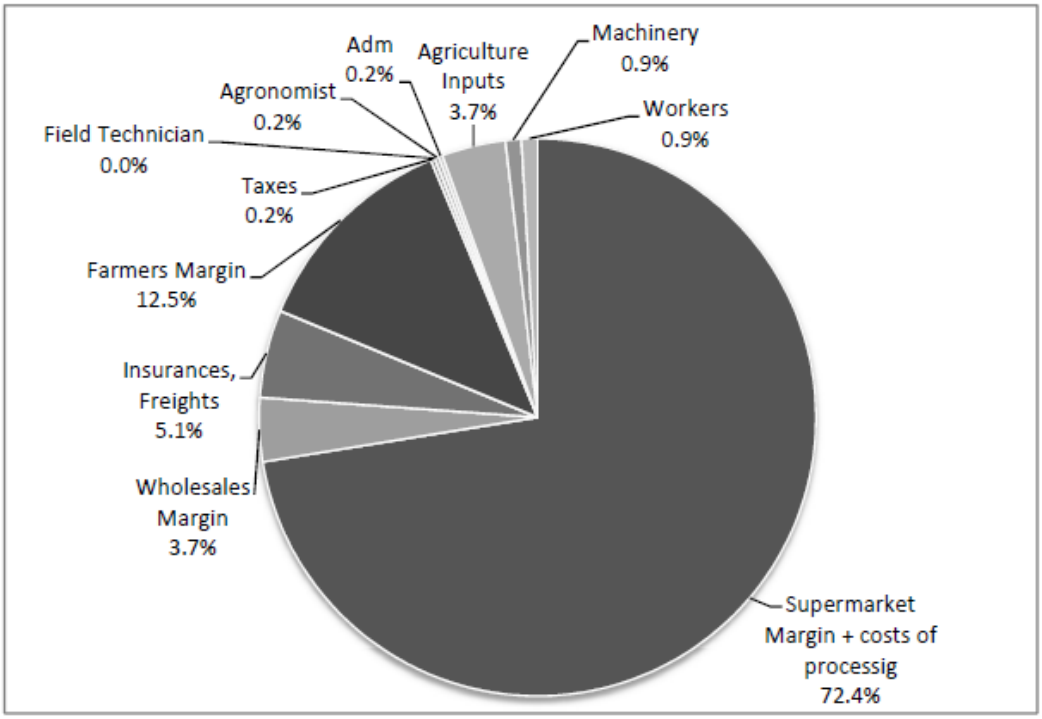


Source: prepared by authors

The low value-added at the supermarket level counters the presupposition that supermarkets occupy a dominant position in agricultural markets. However, it is

important to note that melons consumed in European markets are rarely transacted in their whole form. With smaller, cut portions of melon, the marketing margin of supermarket chains grows significantly, almost quadrupling the final value of the product in relation to fresh whole melon. Thus, by performing this minimal processing procedure, supermarket chains are able to capture over 70% of the final product value. Meanwhile, the producers' share of total value-added is reduced to approximately 10%. Workers accrue a dramatically reduced share of value in this sliced melon market. Their share in total remuneration is less than 1% of the final value.

Graph 6 - Value-Added for Fresh Sliced Melon Sold in the UK



Source: prepared by authors

It is noteworthy that some key on-farm inputs are imported or incorporate imported parts, which requires the indexation of the cost-price relation to current exchange rates. This indexation softens the impact of currency exchange fluctuations, since it affects revenue and expenses proportionately. Moreover, producers and buyers cooperate to cut packaging expenses.

Final Remarks

This study analyzed fresh fruit exports from the irrigated fruit production regions of the Brazilian Northeast. More specifically, it explored the relation between producers and important new players that intervene in processes of international distribution. These new actors are identified as major supermarket chains, wholesalers, and brokers that have emerged as hubs along global supply chains during the recent reconfiguration undergone by the World Food System.

To better understand these dynamics, the development of the major Northeastern fruit producing regions and their consolidation as important producers for the international market in FLVs was analyzed.

This process of consolidation was the consequence of a series of changes in both global demand for food and supply in international markets, which redefined what some authors have referred to as the World Food System. These changes permitted a broad increase in both the quantity, commercialization, and popularization of FLVs destined for raw consumption. The reconfiguration of the WFS also permitted the integration of new production regions and products into the global market system.

In Brazil, some regions within the Northeast have managed to take advantage of this wave of FLV commercialization and popularization. These regions were well situated for this transformation due to their history as targets of public investment in infrastructure that allowed private agents to insert themselves into global value chains for particular agricultural products. The irrigated regions of Açú-Mossoró and Petrolina-Juazeiro regions stand out as leaders in this trend.

The productive structure within these regions is illustrative of the new production paradigm characteristic of the World Food System: flexible production based on provision of high-quality produce to the end-consumer. Given the rapid production cycle of fruit products and the prioritization of attributes such as freshness, production in this sector is organized under the coordination of trading companies and European supermarkets.

After exploring the history of these developments, the study focused on analyzing how the technical organization of marketing chains affects final value for the end consumer of fruit produced in the Açu-Mossoró Region. Approximately 30% of fruit produced in the region is exported within a short period that peaks during the month of August, thus taking advantage of the supply window in counter-seasonal European markets. Just one regional firm controls 80% of the cultivated land and melon supply directed towards export. Other firms imitate the production model and technical apparatus of this dominant player.

Melon production in the region employs thousands of people, mostly on small family farms. Commercial melon operations, dominated by one company, employ formalized workers under regularized working conditions and maintain the practice of contracting and releasing workers throughout the course of the year in accordance with seasonal labor demands. This firm behavior weakens workers' bargaining position. Furthermore, since work is highly intensive during the melon harvest, workers live on premises during these periods in collective, firm-run residences, and dine at company restaurants. This dependence on company services further reduces workers' autonomy. The overall result of these dynamics is the accrual to workers of a very low portion of overall value-added in melon production.

Next, analysis was provided of the contribution of each step in the production chain to the final price paid by British consumers, which led to the identification of a special feature of the international melon value chain. It was found that

supermarkets operated on a very tight margin when retailing whole melon, with the agricultural company retaining more than 60% of total value (40% of which was profit). For these producers, the highest costs of production were those of agricultural inputs and machinery, leaving melon workers with just around 3% of the total value added.

This result contradicts much of the literature, with other studies highlighting the power of supermarket chains in agricultural markets, as evidenced by the fact that a large proportion of the melon consumed in the UK is sold in small, sliced portions that demand a price-per-kg. exceeding three times the value of the whole fruit. Consequently, supermarkets retain approximately 72% of the value of these semi-processed products, further reducing the producer's profit margin and the contribution of labor, which, in this case (sliced melon portions), happens to contribute less than 1% to final value-added.

Finally, when the value-adding process is analyzed within the domestic wholesale market (which constitutes the primary channel for domestic marketing), a greater participation of labor in final value-added was measured (approximately 4% of total
value). Nevertheless, this contribution remained well below the profit margins of both producers and wholesalers.

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Nazioarteko Hizketaldia

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