

Evaluation of compliances of good handling practices in a supermarket in the city of Fortaleza

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ABSTRACT

The supermarket segment represents a sector of fundamental importance in supplying food to the population. Nowadays, consumers are more demanding and knowledgeable about the law, they are more curious about reading a label, checking the expiry date and the sensory state of food. In addition, the Quality Control team together with the administration (Manager and Foremen) are responsible for providing food that meets food safety standards, i.e. without the presence of foreign objects or contaminants that could be harmful to the consumer's health.

Keywords: Compliance, Good practices, Supermarket.

INTRODUCTION

The supermarket segment represents a sector of fundamental importance in providing food to the population. Nowadays, consumers are more demanding and knowledgeable about the laws, they are more curious about reading a label, checking the expiration date and the sensory status of foods. Furthermore, the Quality Control team together with the administration (Manager and Supervisors) is responsible for providing food within food safety standards, that is, without the presence of foreign objects or contaminants that could be aggravating the consumer's health. .

To establish itself in the market and keep its customers loyal, the establishment must follow technical procedures that are identified as Good Handling Practices, which are organized in a Good Practices Manual and described in detail in the form of Standardized Operating Procedures (SOP's).

This work addresses an indicator applied in branch and headquarters stores through consultations on resolutions RDC 216, of September 15, 2004, which deals with technical regulations of Good Practices for food services and RDC 275, of October 21, 2002, which deals with operational procedures, which includes the *check list* to have a basis for the audit.

The objective of internal auditing is not only to observe how processes work, but also to know the quality that is achieved, the cost and the risks involved in this process. Auditing is an activity that evaluates the efficiency and effectiveness of the services performed. In addition to evaluating this process, it is necessary to check how this service is measured, as if there is a control tool, it is possible to identify

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failures and create actions to correct them and ensure that this problem does not occur again. The Quality Control team plays an important role within the company, creating goals, avoiding waste with rework or materials, in addition to transmitting the company's real situation through data collected during the audit. Every audit is carried out in stages, from planning to the final phase of closing non-conformities.

Sales in the supermarket sector grew 4.16% in March/2016 compared to the same month of the previous year, in real terms (deflated by IPCA/IBGE). In relation to February, the real expansion was 8.44% according to the Abras National Sales Index, prepared by the Department of Economics and Research of the Brazilian Association of Supermarkets (ABRAS). The supermarket segment represents a sector of fundamental importance in providing food to the population. Inserted in the food chain, supermarkets are also responsible for providing food within the concepts of food safety, that is, without the presence of substances of any nature that could be agents of disease or health problems.

The work adopts the case study as a methodological approach, and a *check was used to collect the data structured list*, which is made up of 255 checkpoints, divided into cold cuts, meat, FV (Fruits, Vegetables and Vegetables), bakery and confectionery, kitchen and rotisserie, common area and grocery and reception sectors, accompanied by a photographic report, which will be detailed later. To fulfill its objectives, the work first establishes the theoretical framework, followed by the methodological procedures adopted, empirical results and, finally, its conclusions.

GOAL

This article's main objective is to show the importance of using Good Practices using internal auditing as a management tool for the supermarket under study.

In this sense, this work aims to analyze the percentages of compliance related to the requirements for applying good handling practices in the different sectors of seven branches of a supermarket.

METHODOLOGY

This work is classified as a descriptive, qualitative-quantitative study that seeks to evaluate whether employees at the supermarket under study are applying Good Practices daily in their sectors, always preserving consumer safety, through audits that are carried out every fortnight. The assessment took place in the perishable sectors, mentioned below, through a *check list*, based on RDC 216, dated September 15, 2004, with questions relating to equipment, facilities, employee handling, storage of raw materials, filling out spreadsheets, waste segregation, among others. In addition, photos were taken to record non-conformities, and the entire audit process was accompanied by the person in charge of the sector, with prior authorization from the manager of each unit. The sectors are:



- Cold cuts;
- Meat;
- FLV;
- Bakery and confectionery;
- Grocery and Receiving;
- Kitchen and Rotisserie;
- Common area.

The work uses the case study as a methodological approach, which is an empirical study that investigates a current phenomenon in the context of real life, generally considering that the boundaries between the phenomenon and the context in which it operates are not clearly defined (YIN , 2005).

After completing the *check list* , your data is transferred to a spreadsheet in the Excel Program, which generates a graph and consequently the store's score. This score is classified as shown in table 1.

Table 1 – Audit score classification

	QUALIFICATION		
	RANGE	MINIMUM	MAXIMUM
NO MINIMUM QUALIFICATION	DEFICIENT	0.0%	60.9%
QUALIFIED BIMONTHLY INSPECTION	REGULAR	61.0%	70.9%
QUALIFIED QUARTERLY INSPECTION	GOOD	71.0%	80.9%
QUALIFIED SEMI-ANNUAL INSPECTION	EXCELLENT	81.0%	90.9%
QUALIFIED ANNUAL INSPECTION	GREAT	91.0%	100.0%

Source: The authors (2016)

Afterwards, once the photographic report has been created with all the photos and description, it is presented to managers and supervisors to resolve non-conformities. The result is displayed on each store's management board, where the winning store receives a recognition prize. The data, predominantly of a qualitative nature, were interpreted, seeking divergence and convergence, comparing the current theory with the practical information collected in the company, through which the case was constructed, as reported below.

DEVELOPMENT

Next, a theoretical foundation regarding Supermarkets and Quality Management is presented, with the aim of establishing the literature's vision so that, later, analyzes can be carried out in comparison with the fieldwork observed in the object of analysis.



SUPERMARKET

The first supermarkets appeared more than 70 years ago in the United States. The title of first supermarket is King Kullen, opened in 1930 by American businessman Michael Cullen . According to MM Zimmerman (1959), a supermarket is a retail sales establishment with many sections, which sells groceries and other goods, with adequate space for parking cars and making a minimum turnover of US\$250,000.00 per year.

According to Parente (2000), retail in Brazil has undergone an accelerated pace of transformation and consolidation in recent years, with new retail formats, “more efficient and better suited to the new needs of the consumer market”. This transformation in retail will adapt the way products are presented to the consumer in the best way, increasing consumer preference for those who do this in the fastest and most efficient way.

The types of retail with a store can be considered, according to Parente (2000) in food and general merchandise retail. Each of them can be divided into subcategories, as described below:

- Neighborhood Supermarket: according to Bernardino (2004), represents self-service stores with a wide range of products, but a low assortment compared to large stores. According to the author, “they have a total area of 300m² to 700m², operate with 4000 SKUs, sell up to 3% of non-food items and have two to six checkouts”.
- Traditional Supermarkets: represent medium-sized self-service stores, whose sales are highly concentrated in food items and have a superior product mix and assortment than neighborhood supermarkets. According to Parente (2000), supermarkets usually “have an area of 700 to 2500m², sell approximately 9,000 SKUs, and sell up to 6% of non-food items”.
- Superstores: these are larger supermarkets with, according to Parente (2000), an area of 3,000 to 5,000 m² and approximately 14 thousand SKUs in their product mix, whose sales of non-food sales items represent a percentage greater than 10%. Its area allows the exhibition and sale of household and electronic products.
- Convenience Stores: these are places most often located at gas stations that sell the most common foods and drinks for immediate consumption. They can easily be open at times when other establishments are closed, for emergency purchases. Its location is privileged and with easy access, profit margins are higher than other establishments.
- Wholesale: these are large stores, with minimal infrastructure and a very low level of service. Due to the price that is often lower than what can be achieved by purchasing directly from industries, small traders represent a large portion of wholesale customers, in addition to also serving end consumers.



- **Hypermarkets:** they are characterized by occupying large horizontal areas and selling a wide variety of food products and a large assortment of brands, with low margins and very high turnover. They encourage the one-stop concept, that is, where the consumer can, in one place, find purchasing options for most of their needs through self-service at a reduced price.

QUALITY MANAGEMENT

There are several definitions for the term quality, which makes it impossible to have a definitive stance on the idea of what quality really is. What is certain is that it is here to stay, whether at work, at home, in the production of goods or in the provision of services. Ultimately, in any human activity, quality has become indispensable.

According to Mello et al. (2009), quality management principle is a fundamental and comprehensive belief or rule for directing and operating an organization, aiming to improve its long-term performance, meeting customer needs by seeking to exceed their expectations, and forwarding needs to interested parties. Quality Management are sets of actions aimed at obtaining product or service characteristics capable of fully satisfying the needs and expectations of the client/consumer, achieving what is known as quality. (JÚNIOR and BONELLI, 2006).

Quality Management is the cluster of methods related to planning and controlling work, like any administration process. According to Ishikawa (1997): “Quality is equal to the quality of service, quality of work, quality of information, quality of the process, the quality of the worker, the engineer, the administrator, the quality of people, the quality of the system, the quality of the company itself. , of your guideline, of prices...”

TOTAL QUALITY TOOLS

According to Barros (1999), Total Quality is a management philosophy based on the satisfaction of internal and external customers involved in the company, that is, it is a means to achieve the desired objectives and results, and as such it makes use of a set of techniques and tools integrated into the management model. In total there are seven tools, but only the most used in the supermarket under study will be explained in this work, namely: stratification, checklist, audit report and 5W2H. Below, they are explained, as well as examples of their use in the researched supermarket.

TOOL 01: LAYERING

Stratifying is bringing together elements with the same characteristics, that is, the same or very similar items, having common causes and/or solutions. For discrete data, stratification would be the definition of variables or parameters that filter the data, such as: date/time, batch, supplier, shift, operator.

Figure 1 shows an example of stratification applied in the supermarket under study, being a Receipt spreadsheet.

Figure 1: Receipt Spreadsheet

PLANILHA DE RECEBIMENTO DE ALIMENTOS								
CRITÉRIOS PARA O RECEBIMENTO DE MERCADORIAS								
Fazer Avaliação Sensorial dos Alimentos (Cor, odor e sabor); Observar as condições das embalagens; Conferir a Rotulagem, deve constar nome, validade, lote, fabricação, CNPJ, condições de armazenamento e quantidade (peso); Observar as condições do veículo de transporte e entregador ; Medir as temperaturas, que devem seguir os seguintes critérios: Refrigerados= Até 10°C, Congelados=-12°C até -25°C, Pescados resfriados= até 3°C, Produtos Cárneos= até 7°C.								
PRODUTO/FORNECEDOR	MODO DE CONSERVAÇÃO	TEMPERATURA °c	CONDIÇÕES DA EMBALAGEM	CONDIÇÕES DO ENTREGADOR	DATA DO RECEBIMENTO	VALIDADE DO PRODUTO	RESPONSÁVEL	AÇÃO CORRETIVA
	<input type="checkbox"/> RESFRIADO <input type="checkbox"/> CONGELADO			<input type="checkbox"/> BOM <input type="checkbox"/> ÓTIMO <input type="checkbox"/> REGULAR <input type="checkbox"/> RUIM				

Source: The authors (2016)

This spreadsheet is completed daily by someone responsible for receiving, using temperature measuring equipment (laser thermometer), in which he checks all the requirements mentioned and, if they are not met, the product returns to the supplier, or if authorized by the unit manager, is recorded as an observation at the end of the unit.

TOOL 02: CHECKLIST

The checklist is a simple list, with pre-established items in which the items are marked from the moment they are performed or evaluated. It is divided into two different processes that correspond to POP1 (Equipment and installation hygiene) and POP3 (Employee hygiene). It is applied weekly, marking with an X if Conforming (C) or Non-Conforming (NC). If it is not in compliance, action is taken on it, and it is assessed whether they are complying with Good Practice standards.

Figure 2 shows an example of a checklist applied in the supermarket under study.

Figure 2: Checklist

PLANILHA DE CONDIÇÕES DE EFICIÊNCIA OPERACIONAL			
MÊS:			
EQUIPAMENTOS/ UTENSÍLIOS	____/____		Ação Corretiva
	H	O	
BALANÇA DIGITAL			
MESAS EM INOX			
GELADEIRA DE IOGURTES			
ILHA FRANGOS			
ILHA CAIXARIAS			
BALCÃO EMBANDEJADOS			
BALCÃO ATENDIMENTO			
MÁQUINA À VÁCUO			

Source: The authors (2016)

Figure 2 involves weekly completion, in which the Hygiene (H) and Organization (O) of the physical facilities, equipment and utensils are verified, which must be carried out by employees, proven to be qualified, minimizing the risk of food contamination. It is analyzed according to a number from 1 (Regular) to 4 (Excellent), where at the end the weekly sum is made, by sector, and classified according to the result.

Figure 3 shows an example of a checklist applied in the supermarket under study, which is related to POP3.

Figure 3: Personal Hygiene Worksheet

PLANILHA DE HIGIENE PESSOAL									
MÊS:	FREQUÊNCIA: SEMANAL				SETOR:				
ÍTEMS	Verificado por:		Verificado por:		Verificado por:		Verificado por:		
	Data:		Data:		Data:		Data:		
	C	NC	C	NC	C	NC	C	NC	
1.Os uniformes dos colaboradores estão limpos e em bom estado de conservação?									
2.Os calçados são adequados (bota de borracha ou sapato) e estão limpos?									
3.Os colaboradores estão devidamente barbeados e cabelos cobertos?									
4.As unhas estão limpas e aparadas e sem esmalte?									
5.Os colaboradores não estão usando adornos (pulseira, anéis, cordões, brincos, alianças, etc.)?									
6.Os colaboradores sempre praticam atitudes higiênicas, como não tossir, espirrar, sobre os alimentos, equipamentos e instalações, não levar a mão à boca, nariz e orelhas, não cuspir no ambiente, etc., evitando contaminação?									

Source: The authors (2016)

The table mentioned above involves weekly completion, in which the handler's hygiene conditions are checked, regarding personal cleanliness, presenting themselves with uniforms compatible with the activity, preserved and clean. Also observing the non-use of adornments, the correct use of caps and gloves when preparing food and serving customers. This is classified into “Conforming” (C) and “Non-conforming” (NC), in which having significant amounts of NC, an immediate action plan is generated for employees.

TOOL 03: AUDIT REPORT

The audit report is applied through a standard or regulatory compliance verification form. With it, a general check is carried out on site, taking notes of the evidence. A definition of auditing in the ISO 9000 standards says: “Quality Auditing is a methodical and independent examination to determine whether quality activities and related results are in accordance with planned measures, whether these measures are implemented effectively and whether they are appropriate to achieve the objectives”.

For an audit report, it is necessary to seek to generate as many questions as possible whose answer can be of the type “Compliant” or “Non-compliant”, so that the “YES” assessment corresponds to a compliance and “NO” to non-compliance. Figure 4 shows an example of an audit applied to the supermarket under study.

Figure 4: Check list

<u>AUDITORIA</u>	Auditorias Realizadas
	Data
1. FRIOS	
1.1 Os colaboradores estão cumprindo as regras de higiene pessoal? (epi's limpos, não usar perfume e adornos, cabelos cobertos, unhas e mãos limpas e sem esmalte, barba feita)?	4
1.2 Os colaboradores cumprem as recomendações de não comer, mascar, cantar, ouvir música, portar objetos pessoais etc. nas áreas de trabalho?	2
1.3 Há sabonete bactericida e papel toalha em todas as pias de higienização das mãos?	4
1.4 O cronograma de limpeza está sendo cumprido e sinalizado?	2
1.5 Os evaporadores estão limpos e sem excesso de gelo?	2
1.6 Os cestos de lixo possuem tampas, acionamento por pedal, limpos e com sacos plásticos?	2
1.7 A lixeira está identificada e o lixo está segregado?	2

Source: The authors (2016)

The preparation of this checklist shown in figure 4 is based on RDC No. 275, of October 21, 2002, which provides for the Technical Regulation of Standardized Operational Procedures applied to food producing/industrializing establishments, and is complementing RDC 216, of September 15, 2004, which provides for technical regulations on Good Practices for Food services.

Figure 5 below shows the continuation of the check process list, presenting the results by sector.

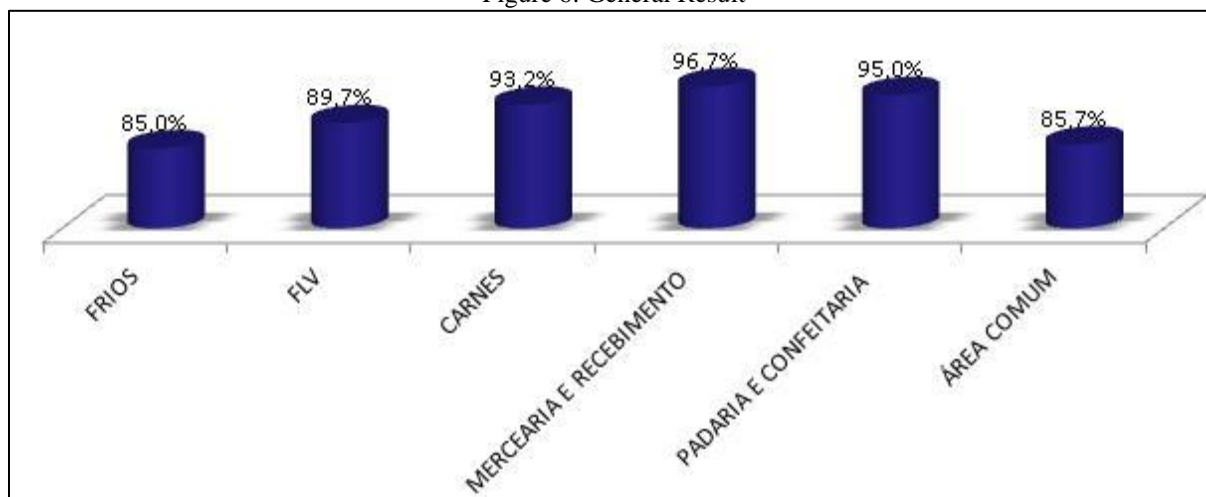
Figure 5: Results by Sector

QUALIFICAÇÃO		
	Setor/Local	Resultado
1	FRIOS	85,0%
2	FLV	89,7%
3	CARNES	93,2%
4	MERCEARIA E RECEBIMENTO	96,7%
5	PADARIA E CONFEITARIA	95,0%
6	ÁREA COMUM	85,7%
Resultado- Média Geral		90,9%

Source: The authors (2016)

The qualification result presented in figure 5 is generated according to the completion of the questions asked in the Chek List (Figure 4), in which a formula was inserted in Excel to calculate it. Numbers 0, 2 and 4 are listed for the following assignments, respectively: unfulfilled items, partially fulfilled items and fulfilled items. Figure 6 represents the results of the sectors in graphic form, and in this specific store there is no Kitchen and Rotisserie sector, as it is a small area.

Figure 6: General Result



Source: The authors (2016)

For each sector, an individual result is automatically generated, demonstrating its qualification according to the classification represented in figure 7.

Figure 7: Result Qualification

	QUALIFICAÇÃO		
	FAIXA	MÍNIMO	MÁXIMO
SEM QUALIFICAÇÃO MÍNIMA	DEFICIENTE	0,0%	60,9%
QUALIFICADO INSPEÇÃO BIMESTRAL	REGULAR	61,0%	70,9%
QUALIFICADO INSPEÇÃO TRIMESTRAL	BOM	71,0%	80,9%
QUALIFICADO INSPEÇÃO SEMESTRAL	ÓTIMO	81,0%	90,9%
QUALIFICADO INSPEÇÃO ANUAL	EXCELENTE	91,0%	100,0%

Source: The authors (2016)

According to the defined rules, the store that provides results in the “Great” and “Excellent” ranges, during 03 consecutive audits, receives a bonus for motivation and recognition.

TOOL 04: 5W2H

According to Vergara (2006), the 5W2H action plan is mainly used in mapping and standardizing processes, developing action plans and establishing associated procedures and indicators. It is basically managerial in nature and seeks easy understanding through the definition of responsibility, methods, deadlines, objectives and associated resources.

The observations presented in the audit are explained separately, for subsequent preparation of an action plan. In this plan, the number of nonconformities, the nonconformity, the solution and the person responsible for carrying out the solution are presented. Therefore, the description of the non-conformity must be very clear, so that the person responsible can take the appropriate measures. Figure 8 shows an action plan model.

Figure 8: Action Plan

PLANO DE AÇÃO- QUALIDADE							
GESTOR DA QUALIDADE:				MÊS:			
RESPONSÁVEL PELO ACOMPANHAMENTO:			GERENTE:			LOJA:	
LEGENDA: setor HORTI							
OBS.:		Para incluir a cor AZUL, na coluna 5 (status) digite 4, VERDE digite 3, AMARELO digite 2 e VERMELHO digite 1.					
Responsável pela Atualização:		Data da Última Atualização:		Data da Próxima Atualização:			
Código	Não Conformidade	Ação	Responsável	Prazo		Status	Observações
				Início	Término		
NcCG120716	Produto com data expirada na área de venda (Feijão Verde dia 11/07)	Realizar triagem diariamente	Encarregado do Setor	12/07/2016	12/0716		Retirado no ato da auditoria

Source: The authors (2016)

Figure 8 shows a spreadsheet based on the photographic report made during the audit. This is delivered to those in charge of the sectors for possible corrections of non-conformities. The deadline is determined according to the condition of the problem exposed, that is, as mentioned in the example, this is a dangerous risk, as the customer may tarnish the image of the establishment and not return to the location. When there is a pending cleaning issue, it may take up to five days to resolve it.

The spreadsheets mentioned serve as a reference for standardizing processes and monitoring good practices for employees and workplaces, as well as food safety.

PRESENTATION AND DISCUSSION OF RESULTS

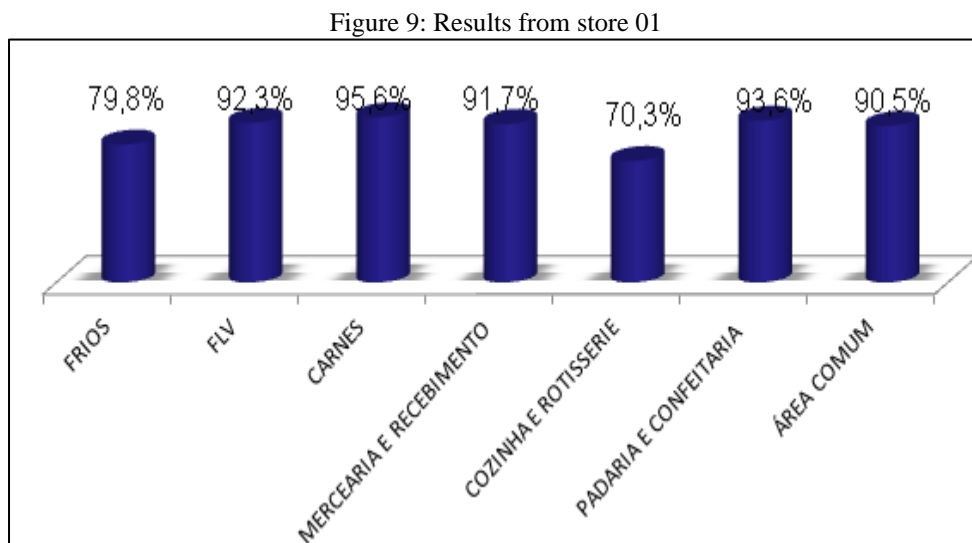
The results of the work will be presented below, that is, the diagnoses and discussions of the case study carried out in seven retail stores.

RESEARCH VALIDATION

The tool for the study consisted of a check list of questions, based on RDC 275, photos and monitoring of leaders from each sector, where all stores participated, including all sectors. The results were obtained according to the actual situation of each store.

RESULTS

According to figure 9, the respective results for store 01 can be seen.

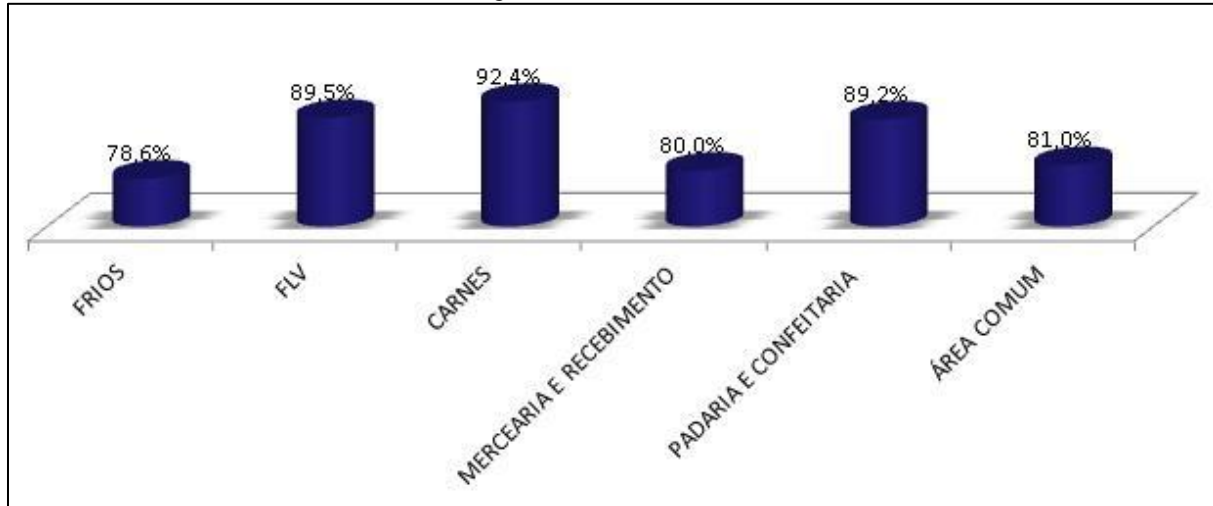


Source: The authors (2016)

It can be seen that the Kitchen and Rotisserie sector, with 70.3%, presented itself as the one with the lowest performance, with deficiencies in the following points: lack of marking in the cleaning schedule, dirt in the preparation room extractors, waste baskets with dirt and no lid, presence of empty cardboards inside the preparation room, dirt on some equipment and installations and in the storage chambers. The highlighted sector in store 01 was Meat, with 95.6%, and the overall result was 90.6%.

Figure 10 shows the results from store 02.

Figure 10: Store 02 results

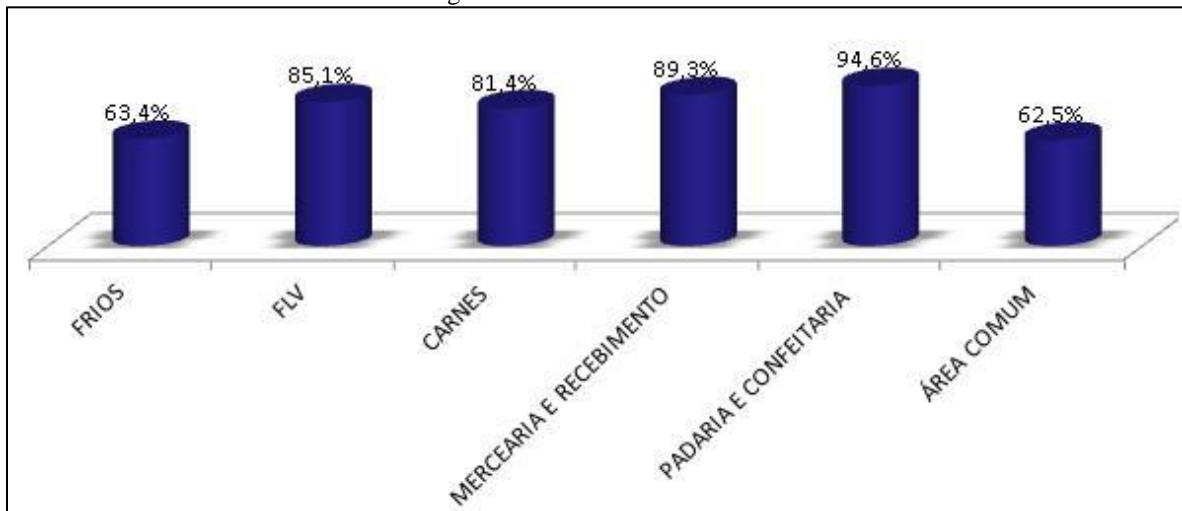


Source: The authors (2016)

In this store it can be seen that the sector with the lowest yield was Cold Food, with 78.6%, presenting as negative points the presence of pests (flies), products in contact with the floor, without the use of pallets, damaged products inside of the preparation room, expired products, dirt on the preparation room countertops, dirt on equipment and utensils, accumulation of stock in damage chambers and obstructed circulation areas. The highlighted sector in store 02 was Meat, with 92.4%, and the overall result for this store was 85.1%.

Figure 11 shows the results from store 03.

Figure 11: Results from store 03

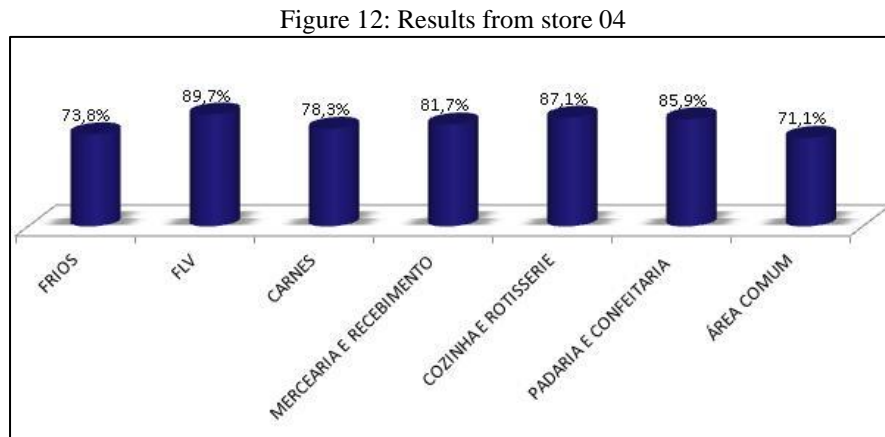


Source: The authors (2016)

It can be seen in store 03 that the sector that presented the lowest profitability was the Common Area, with 62.5%, which involves the physical and structural store, presenting the following negative points: absence of soap in the sanitary facilities, lack of monitoring of the cafeteria schedule, trash baskets

full of dirt, dirt in the changing rooms, scattered PPE , blocked corridors, dirt under the grocery store shelves. In this store, the best sector was Bakery and Confectionery with 94.6%, leaving the overall result at 79.4%.

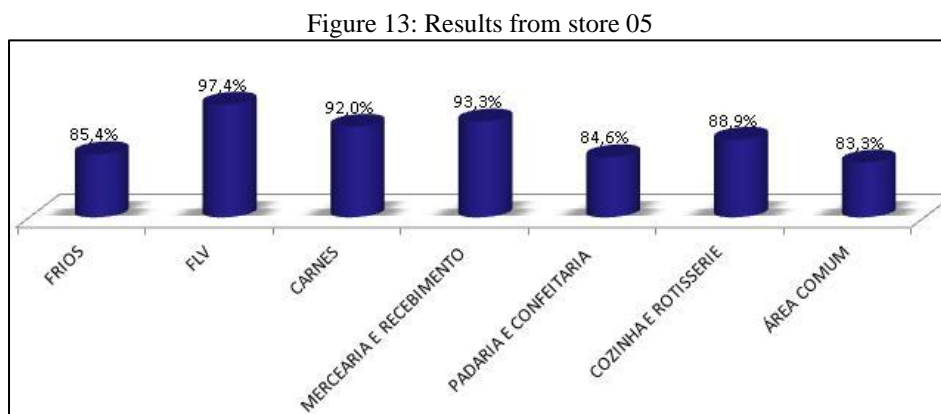
Figure 12 shows the results from store 04.



Source: The authors (2016)

It can be seen in figure 12 that the sector with the lowest result in store 04 was the Common Area with 71.1%, being scored due to the absence of soap in the hand hygiene sinks, waste baskets with broken pedals, lack of segregation of trash cans, portioned products stored in unmarked refrigerators, products displayed in tanks at an inappropriate temperature, dirt on cafeteria chairs, and dirt on facilities such as walls, floors and countertops. The best sector in this store was FLV with 89.7%, and the store's overall performance was 81.1%.

Figure 13 shows the results from store 05.

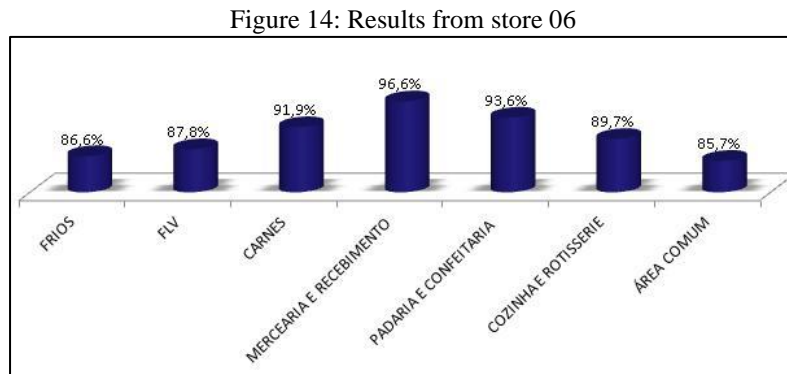


Source: The authors (2016)

We can see that the sector with the lowest profit in store 05 was the Common Area, with 83.3%, being scored due to the lack of marking in the cleaning schedule, the waste baskets were dirty and missing

bags, the rubbish that it was in the bin and did not match the label, dirt on the chairs and tables in the cafeteria, trash baskets with broken pedals in the bathrooms. The best sector in this store was FLV with 97.4%, and the store's overall performance was 89.3%.

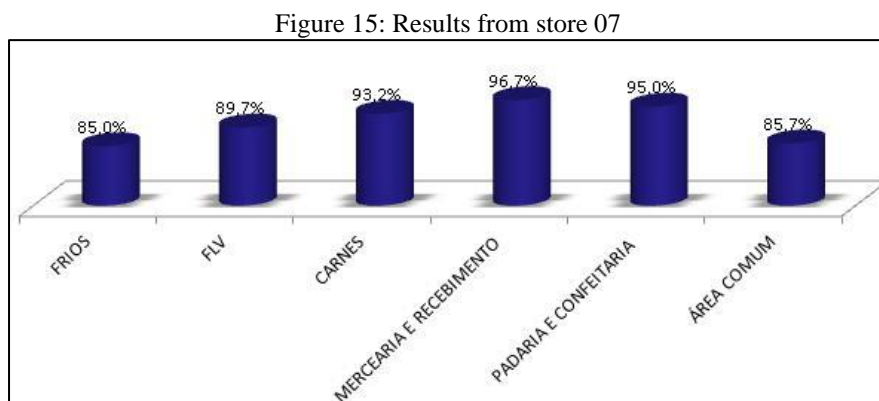
Figure 14 shows the results from store 06.



Source: The authors (2016)

It can be seen that the sector with the lowest performance in store 06 is the Common Area, with a score of 85.7%, which was negative in presenting the absence of soap and paper in the internal areas of the sanitary facilities, trash baskets with dirt on the lid, dirt on the walls of the bathroom facilities, absence of informational posters about hand washing in customer sinks. The best sector in this store was Grocery with 96.6%, and the store's overall result was 90.3%.

Figure 15 shows the results from store 07.

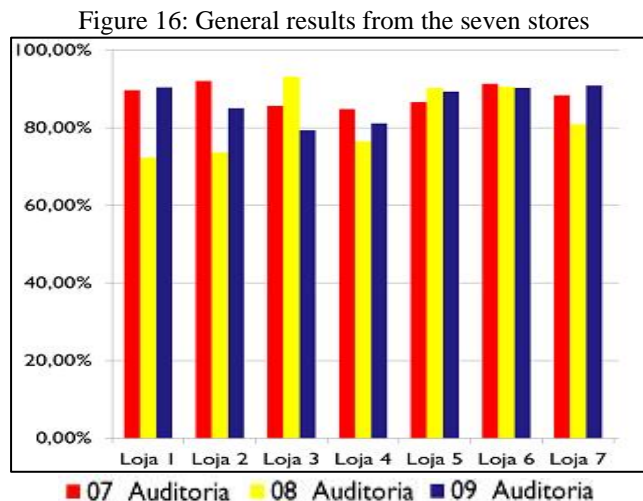


Source: The authors (2016)

In store 07, it can be seen that the cold cuts sector, with 85%, had a low balance, due to the lack of completion of the cleaning schedule, the absence of antibacterial soap in the preparation room, and no garbage segregated according to identification, damaged products within the sector along with good products, dirt on some equipment and utensils exposed without handling, disorganization and dirt on the

floor of the frozen chamber, as well as expiration dates were not being followed. The best sector in this store was Grocery, with 96.7% meeting legal requirements, and the overall result for this store was 90.9%.

Figure 16 shows the general results for each of the seven stores.



Source: The authors (2016)

It can be seen, when evaluating figure 16, that the last audit is compared with the two audits carried out previously, that is, the result that each store obtained during the 3 consecutive months is verified. It appears that, in relation to the 8th audit, stores 01,02,04 and 07 had an eminent growth related to improvements in compliance. Therefore, it can be said that stores 03 and 05 had a significant and not very evident reduction, respectively.

FINAL CONSIDERATIONS

Although some employees still have difficulty adapting to the audit process, they are always concerned about maintaining the environment and regular personal hygiene, ensuring food safety.

The application of the audit was satisfactory in four stores and unsatisfactory in two stores, and it can be highlighted that the difference in scores was not very significant, thus being an acceptable process to be applied in food chains, confirming the importance of a technical manager in the area to guide and monitor points of importance, ensuring the quality of the food, thus suggesting appropriate corrective actions for cases of non-conformities found.



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