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Waste-Free Kitchen Practices of Michelin Guide Starred Restaurants: The Case of Türkiye¹

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Abstract

Waste-free kitchen means keeping the waste materials that may occur at production, service and consumption points in the application units under control without threatening human health and the environment. The aim of this study is to investigate the studies on waste-free kitchen practices of Michelin Guide starred restaurant establishments in Türkiye and to develop recommendations for food and beverage establishments. The study group of the research consists of the establishments in Türkiye that have received a Michelin Star in the Michelin Guide 2024 selection. The sample consists of six participants determined by purposive sampling, one of the non-probability based sampling types. In the study, in which qualitative research method was used, data were obtained through online interviews with semi-structured interview technique. The data were analyzed with MAXQDA computer-aided qu-

alitative data analysis system. In addition, common practices and differences between restaurants were examined in depth through thematic analysis. As a result of the findings obtained from the analyses, deficiencies in waste-free kitchen practices such as waste-free menu, reuse of organic waste, not preferring disposable materials, on-the-job training of personnel and cooperation with suppliers were identified. The results obtained from this study and the suggestions developed for various segments in the light of the results offer a new perspective by making a unique contribution to the literature.

Keywords: Waste-Free Kitchen, Michelin Stars, Michelin Guide, Environmentally Friendly, Waste Management.

JEL Codes: Z32, L83, Q01, D12

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1. Introduction

The sustainability of life on earth depends on the continuation of the ecological cycles of components such as nutrients, water, oxygen, nitrogen and moisture. Any negative change in the components that make up the ecosystem creates a risk that threatens the living organism (Akin, 2014). It is essential to protect natural life in order not to endanger living life and to maintain the vital cycle that forms the ecosystem. However, the radical changes caused by globalization, the increase in the population population and the differentiation in consumption habits have led to an undesirable process in the use of resources and brought the concept of food waste and food waste to the agenda. Global population growth and increasing consumption habits necessitate the sustainable use of natural resources. In this context, environmentally conscious businesses adopt sustainability principles in their operations and develop waste management strategies accordingly (Gunningham & Sinclair, 1999).

Waste-free kitchen management represents an innovative approach that aims to minimize the environmental impact of businesses operating in the food sector. This approach is based on the basic principles of preventing food waste, reusing and recycling waste, increasing energy efficiency and managing natural resources effectively (Papargyropoulou et al., 2014). Waste-free kitchen management not only supports environmental sustainability but also provides economic advantages to businesses. Costs are important for businesses to ensure the continuity of their commercial activities. Reducing food waste reduces operating costs and increases efficiency in businesses (Gustavsson et al., 2011). In addition, improving waste management processes reduces the environmental footprint of businesses such as carbon and water footprints and contributes to achieving corporate social responsibility goals (Wheeler & Elkington, 2001). Waste generation in kitchens brings an additional cost to businesses and also causes environmental footprints (Kayış, 2023).

According to the Turkish Statistical Institute, 18 million tons of organic products such as vegetables and fruits are thrown away annually, and the economic size of the total food waste caused by these discarded products is 5.137 billion euro (TUIK, 2018). In terms of food sustainability, Türkiye ranks 20th among 25 countries in the "Sustainable Food Index" (Republic of Türkiye Ministry of Environment and Urbanization, 2019). In this context, waste-free kitchen management is critical for sustainable food production and consumption. These factors are especially important for businesses that are included in the Michelin Guide. Environmental awareness, sustainability, waste management and renewable energy are important themes in the Michelin Guide criteria, especially in terms of receiving Green stars (Michelin Guide, 2023).

Michelin-starred restaurants are recognized for their high quality standards and superior gastronomic experiences. These establishments stand out not only for their food quality, but also for their practices in sustainability and environmental awareness. In recent years, Michelin-starred restaurants have taken important steps in waste-free kitchen management and started to lead the industry. The main purpose of these initiatives is to minimize food waste, reduce environmental impacts and develop a sustainable gastronomy approach (Michelin Guide, 2023). This research aims to examine the waste-free kitchen management practices of Michelin Guide starred restaurant establishments in Türkiye and analyze the economic, environmental and social impacts of these practices on the businesses. The study aims to reveal the innovative approaches adopted by elite restaurants in the context of minimizing food waste, increasing resource efficiency and developing sustainable kitchen management strategies.

The main focus of the research is to examine the role of waste-free kitchen management on the competitive advantage of businesses and to propose policies for the dissemination of these practices in the gastronomy sector. The findings to be obtained through qualitative methods will contribute to the development of sustainable business models and operational improvement strategies for other food and beverage businesses in the sector. In addition, this study aims to contribute to the academic and industrial literature on issues such as preventing food waste, integrating circular economy principles into kitchen operations and raising consumer awareness. The analysis of these practices led by Michelin-starred restaurants aims to provide a model for gastronomy sustainability in Türkiye and guide future policy recommendations. The unique value of this research is that there has not been much in-depth research on the waste management of Michelin-starred establishments, as the establishments in which the research was conducted are included in a new evaluation system in Türkiye.

2. Conceptual Framework

2.1. Waste Management

For many years, the concept of waste has been regarded as undesirable materials that are no longer wanted and expressed as rubbish and cause negative effects on the environment. Thanks to the new ecological policies, the importance of wastes, which have ceased to be unused materials and goods, has started with the process of 'income generating and productive utilisation' (Akdoğan & Güleç, 2005). Food loss refers to losses that occur during the production, harvesting, transport, storage and processing stages from harvest to the consumer. This is a problem caused by infrastructure and logistics inadequacies, especially in developing countries. Food

waste refers to food discarded by retailers, restaurants and consumers when it is still edible. Food waste is more prevalent in developed countries and is mainly due to unconscious consumption habits (Food and Agriculture Organization, 2019).

Due to all the developments in daily life and unconscious consumption behaviours around the world, the concepts of waste and food loss remain on the agenda. According to the statements of Çetinoğlu and Ünlüönen (2020), it was stated that 13 million tonnes of food is thrown away as garbage every day in the world, five million litres of water is flowed unconsciously and 1.5 million tonnes of greenhouse gases are released into the atmosphere as a result. Abiad and Meho (2018) explained food loss and waste as risks that threaten food security and cause serious damage to economic and environmental conditions.

The amount of food waste and loss varies quantitatively according to conditions and situations. The major reasons for these differences include factors such as income level, urbanisation and economic growth (Chalak et al., 2016). In underdeveloped countries, food waste and loss occurs mainly after harvest and during processing (Gustavsson et al., 2011), and food waste and loss in these processes accounts for about 44 per cent of global loss rates (Lipinski et al., 2013).

2.2. Waste Reuse and Recycling

Reuse and recycling in waste management are critical to achieving sustainability goals. Reuse aims to reduce resource consumption and the amount of waste by extending the life of a product or material. Recycling is the process of collecting, processing and utilising waste materials in the production of new products. These two methods provide economic and social benefits while supporting environmental sustainability (Ghisellini et al., 2016).

Reuse is recognised as a priority strategy in waste management. This strategy aims to extend the life of products, especially consumer durables, packaging and construction materials. For example, reuse of glass and plastic bottles saves energy and reduces the use of raw materials. Moreover, reuse of food waste increases soil fertility and reduces the amount of organic waste through practices such as composting (Papargyropoulou et al., 2014).

Recycling in gastronomy is an approach that aims to reuse food waste and by-products in line with sustainability principles. This approach is considered as an important strategy to reduce waste and minimise environmental impacts in food production processes (Zanella, 2020). In particular, restaurants and food businesses recycle kitchen waste in various ways, providing both economic gain and contribu-

ting to the sustainable food chain (Gössling & Hall, 2021).

2.3. Waste Free Kitchen

Food is the basic need for living things to sustain their lives and is defined as solid and liquid nutrients that are essential for the body to continue its development, gain energy, repair cells and tissues, and for the organs to function regularly (Bender, 2006). However, these nutrients become waste in some situations and conditions and cannot be used appropriately. For years, the concept of waste has been seen as unwanted garbage and substances that cause negative impacts on the environment. Food loss refers to the losses that occur during the production, harvesting, transportation, storage and processing stages from harvest to the consumer. This is a problem caused by infrastructure and logistics inadequacies, especially in developing countries. Food waste includes food discarded by retailers, restaurants and consumers when it is still edible. Food waste is more prevalent in developed countries and is mainly due to unconscious consumption habits (Food and Agriculture Organization, 2019). A reduction in malnutrition rates is predicted when food waste and loss worldwide is properly assessed. Studies by Gustavsson et al. (2011) reveal that about one-eighth of the world's population faces the problem of malnutrition. This shows how critical it is to develop sustainable solutions for reducing food waste and efficient use of resources. In this context, the Zero Waste approach stands out as an effective strategy for solving solid waste problems.

The concept of Zero Waste was first used in the mid-1970s by chemist Dr. Paul Palmer within the Zero Waste Systems Inc (ZWS) company established in California (Demir, 2019). Palmer developed this concept specifically for the recycling and reuse of chemical waste, thus laying the foundations for a new perspective in waste management. Over time, this approach was not limited to industrial processes and spread to many areas, including the food sector. Zero Waste generally means managing waste generated as a result of production and consumption activities in a way that does not threaten the environment and human health (Bilgili, 2021). This principle is embodied in zero-waste kitchen practices, especially in the food sector. A zero-waste kitchen involves minimizing the wastes that may occur during food production, service and consumption stages, using resources efficiently and utilizing wastes through methods such as recycling or composting (Akay et al., 2023).

Waste-free kitchen practices include strategies such as preventing food waste, composting organic waste, recycling and reuse. In recent years, the concept of zero waste has been on the agenda frequently.

This concept, which is among the elements of sustainability, means preventing or minimizing waste generation as much as possible, preventing waste, collecting the wastes separately according to their sources and including them in the recycling process (Papargyropoulou et al., 2014).

2.4. Michelin Guide

The Michelin Guide has been recognized as a quality standard for the evaluation of restaurants and hotels worldwide since it was first published by the Michelin company founded in France in 1900. Initially created to guide drivers on their journeys, the guide has become a prestigious resource that objectively evaluates the quality of restaurants and hotels (Michelin Guide, 2023). The guide has come to represent a very important incentive for the tourism sector. Restaurants with top stars have the capacity to attract new customers, promote gastronomy tourism and project a positive image and brand of the country (Bakova, 2013). Having a Michelin Star is a great prestige for both restaurants and restaurant chefs (Kuday & Yazıcı Ayyıldız, 2023).

The Michelin Guide holds a prestigious place in the world of gastronomy and the Michelin stars awarded to outstanding restaurants give them a great international reputation. Restaurants with Michelin stars are places that meet certain quality standards and offer unique gastronomic experiences. The characteristics of these restaurants are based on criteria such as high quality, creativity, service excellence and sustainability (Lane, 2014). These characteristics enable Michelin-starred restaurants to offer unique and unforgettable gastronomic experiences to their guests. These restaurants, which operate in accordance with the criteria of the Michelin Guide, are among the prestigious venues preferred by gastronomy lovers around the world.

The Michelin star system evaluates restaurants according to certain criteria and awards them 1, 2 or 3 stars. Michelin's core mission is to promote high culinary standards, support sustainable gastronomy and offer consumers experiences of consistent quality. Michelin stars are awarded based on factors such as culinary quality, choice of ingredients, technical skill, flavor harmony, chef's personal touch and consistency. The main differences according to the number of stars are as follows:

1 Michelin Star: Restaurants "worth a visit if you happen to be in the area". Superior quality of food, remarkable technical skill and consistency. Freshness of ingredients and seasonality are important.

2 Michelin Stars: Restaurants "worth going out of your way for". Exceptional creativity, sophisticated techniques and harmonious flavor profiles. The quality of the wine to accompany the meal is also assessed.

3 Michelin Stars: Restaurants "worthy of a special trip". The pinnacle of culinary art, an unforgettable experience. Perfection is sought from ingredient selection to presentation.

In recent years, the Michelin Guide has placed increasing emphasis on environmental sustainability and waste management. In particular, by adding the "Green Star" category from 2020, it has highlighted restaurants with sustainable practices. Waste-free kitchen practices in Michelin-starred restaurants are expected as follows:

Minimizing Food Waste: Full use of all ingredients (nose-to-tail, root-to-stem approach). Waste prevention in menu planning (portion control, excess stock management). Use of recyclable or compostable materials.

Resource Efficiency and Sustainable Supply Chain: Working with local and organic producers. Efficient use of water and energy (low energy equipment, water recycling systems). Reducing the use of plastics (reusable alternatives to single-use products).

Circular Economy Principles: Use of food waste for animal feed or biogas production. Composting kitchen waste to be used as a soil amendment. Providing delivery/pick-up services with reusable packaging.

Social Responsibility and Guest Awareness: Raising consumer awareness about food waste (e.g. donating leftovers). Sharing surplus food with food banks (Michelin Guide, 2025).

Europe has historically had the highest concentration of Michelin stars. For example, France (632 starred restaurants according to 2023 data) and Spain (260 starred restaurants) stand out with establishments that combine traditional culinary techniques with modern approaches (Michelin Guide, 2023). The Michelin Guide started to be published in Türkiye in 2022. İstanbul became the first Turkish city to be included in the Michelin Guide. This development has increased Türkiye's importance in the world of gastronomy and contributed to the international recognition of Turkish cuisine. The introduction of the Michelin Guide in Türkiye has created a great source of prestige for local chefs and restaurants and encouraged fine dining experiences. The Michelin Guide in Türkiye was published for the second time in 2023 for restaurants in İstanbul, during which time new restaurants were added to the list and some restaurants maintained or increased their number of stars. This demonstrated the continuous development of the gastronomy scene in Türkiye and its capacity to provide services at international standards (Michelin Guide, 2023). There was a significant increase in the number of restaurants included in the Michelin Guide in Türkiye in 2024 and 2025. In 2024, restaurants in İstanbul, İzmir and Bodrum were included in the evaluation and a total of 103 restau-

rants were included in the Michelin Guide. In 2025, the Muğla region was also included in the evaluation and the number of restaurants receiving a Michelin Star increased to 14 (Michelin Guide, 2025).

2.5. Waste-Free Kitchen Practices In Michelin Guide Restaurants

Waste-free kitchen practices are one of the most important elements of sustainability and eco-friendly initiatives in the gastronomy sector. Restaurants included in the Michelin Guide are leading the way in this area, minimizing their environmental impact and developing waste management strategies. In particular, food waste prevention, recycling and composting are used to reduce damage to nature. These efforts lead to an increased awareness of sustainability in the world of gastronomy and the spread of environmentally friendly practices. In a study by DeFries and Scheepens (2019), the waste management strategies of Michelin-starred restaurants were examined and it was stated that these restaurants achieved significant waste reduction in their kitchen operations. The study emphasized that restaurants take waste minimization into account from the menu planning stage, turn to sustainable sources in material procurement processes, and use environmentally friendly solutions such as composting and biogas production by effectively utilizing food scraps. In this context, restaurants included in the Michelin Guide demonstrate not only their gastronomic excellence but also their environmental responsibility with their waste-free kitchen practices (DeFries & Scheepens, 2019).

Waste-free kitchen management offers a model that supports environmental sustainability while increasing operational efficiency (Filimonau & De Coteau, 2019). Waste-free kitchen management is considered as a strategic approach that both supports environmental sustainability and increases operational efficiency in today's food sector. This management approach offers a holistic model that includes prevention of food waste, efficient use of resources, cost control and environmentally friendly production processes (Zhang et al., 2020). This research on Michelin-starred restaurants in Türkiye is expected to contribute to the literature at both national and international level and pave the way for the development of new recommendations in this field.

3. Methodology

In this study, interview technique, which is one of the qualitative research methods, was preferred to examine waste-free kitchen management practices in starred restaurants in the Michelin Guide in Türkiye. Qualitative research methods are widely used espe-

cially in social sciences and provide the researcher with the opportunity to understand the subject of investigation in depth and analyse it from a contextual perspective (Creswell, 2013).

This chapter explains how the research was designed and how the data collection and analysis process was conducted. The research focuses on analysing waste-free kitchen management practices in Michelin-starred restaurants in Türkiye. This technique was utilised to gain an in-depth understanding of how practices such as waste-free kitchen management are perceived and implemented by stakeholders such as restaurant owners, chefs and kitchen staff. For this purpose, qualitative research method was adopted and MAXQDA software was used to analyse the data. In addition, common practices and differences between restaurants were examined in depth through thematic analysis. The interviews were conducted online with chefs working in Michelin Guide starred restaurants in Türkiye. The interviews were conducted online with chefs working in Michelin Guide starred restaurants in Türkiye. The main reason for choosing Türkiye for the study is that the Michelin Guide has just started to play a role in Türkiye. The interview questions focused on waste management strategies, sustainable kitchen practices, recyclable products, the status of staff and suppliers, renewable energy, and how restaurants are associated with Michelin criteria in this process. The views of the participants were voluntarily video recorded with their permission and then transcribed and made ready for analysis.

The research was conducted between April 2024 and September 2024, reaching six out of a total of 12 star establishments in İstanbul, İzmir and Muğla provinces across Türkiye. In the qualitative research, semi-structured interview technique was used as a data collection tool. This type of interview involves asking predetermined questions and addressing some specific issues. Interviewers can deepen the answers they receive to the structured questions they have prepared (Berg & Lune, 2015). The data were obtained using purposive sampling method, one of the non-probability based sampling types. In this method, the sample consists of people who the researcher believes will find answers to the research problem (Altunışık et al., 2007). Purposive sampling method increases the efficiency of the research by identifying the participants with the most appropriate information for the research questions. In this study, Michelin-starred restaurants were preferred because these establishments stand out as industry leaders in waste-free kitchen management and attach high importance to sustainability practices. Thus, it was ensured to reach people who are suitable for the purpose of the research and who can answer the questions correctly (Altunışık et al., 2007).

3.1. Validity and Reliability

The steps taken to ensure validity can be listed as follows:

Data collection tools were prepared based on the literature, thus ensuring consistency between the data collection tool and the literature. In qualitative research methods, the interview form was evaluated by six experts working on gastronomy and zero waste, and the interview form was revised in line with the feedback given. After the pilot study applied to eight local restaurants, the questions were reorganised and the final version of the interview form was created. Purposive sampling method was preferred in the study. Thus, it was ensured to reach people who are suitable for the purpose of the research and who can answer the questions correctly (Altunışık et al., 2007). The data were collected in detail and in depth by making an appointment in advance from the enterprises where the participants were located and by conducting online interviews. The interviews were video-recorded after obtaining the verbal consent of the individuals. Individuals were allowed to share their different opinions and experiences during the interview and no intervention was made.

The steps taken to ensure reliability can be listed as follows:

The researcher clearly stated his/her role in the research process and the difficulties he/she experienced. The descriptive information of the enterprises where the participants work is coded in the method

section. The data collection and analysis method is explained in detail. The data obtained from the interviews and explained in the findings are presented primarily without comment. At least two data sources were utilised when interpreting the results on a particular subject. Codes and categories were confirmed by an independent expert in checking and analysing the data. The results of the research were compared with similar studies, supported by the literature and explained in the findings section. The data were written objectively and read twice continuously and 7-8 times intermittently before the analysis to understand the structure of the events and phenomena. The evidence of each finding and conclusion was supported by quotations from the participants' perspectives and objective results were tried to be reached as much as possible. All data collection tools obtained within the scope of the research, written documents and files created during the coding processes were recorded and stored (Yıldırım & Şimşek 2013).

The research establishments are restaurant establishments in Türkiye that have been awarded with a Michelin star in the Michelin Guide 2024 selection, and the chefs and sous chefs of the aforementioned establishments constitute the sample of the study. The list of stakeholders interviewed is shown in Table 1 (for the confidentiality of the businesses where the participants work, their names, surnames and the organizations they work for are not specified in the table).

Table 1. Participant List and Profile

Code	Title	Education Status	Number of Stars	Recorded Call Times	Organization Location
P1	Executive Chef	Associate Degree	One Star: High Quality Kitchen	18:44 min	Bodrum
P2	Executive Chef	Undergraduate	One Star: High Quality Kitchen	17:14 min	İstanbul
P3	Executive Chef	Postgraduate	One Star: High Quality Kitchen	16:07 min	İstanbul
P4	Executive Chef	Undergraduate	One Star: High Quality Kitchen	15:05 min	İstanbul
P5	Executive Chef	Postgraduate	One Star: High Quality Kitchen	25:11 min	Urla
P6	Head Chef	Associate Degree	Two Stars: Excellent Kitchen	13:53 min	İstanbul

Five different descriptive questions were asked to determine the characteristics that define the Michelin-starred restaurant establishments participating in the research. The statements given to these questions were processed in the descriptive information section of the MAXQDA qualitative analysis

program. All enterprises are indicated with the codes "P1, P2, P3, P4, P5 and P6" within the scope of confidentiality of private information. The findings related to the answers given by the chefs are given in Table 2.

Table 2. Descriptive Information of Enterprises

	Kitchen Concept	Customer Capacity	Number of Staff	Number of Michelin Stars	Activity Duration
P1	Luxury Restaurant (Fine-dining)	150	75	1	48
P2	Modern Kitchen	125	34	1	19
P3	Luxury Restaurant (Fine-dining)	35	16	1	10
P4	Modern Kitchen- Ethnic Kitchen	24	-	1	1
P5	Innovative Kitchen	30	30	1	4
P6	Modern Kitchen (Fine-dining)	36	26	2	5

Participants were coded to avoid confusion during the data analysis phase. In the interviews with the participants, in order to obtain the demographic information of the businesses in which the participant was working, relevant questions were asked to determine the concept of the business, customer capacity, number of employees, number of Michelin stars and duration of operation.

The interview questions were prepared by taking the opinions of three academics specialized in the field of tourism and gastronomy in Türkiye. The prepared questions were then submitted to the opinions of six academicians who are also experts in the field of tourism and gastronomy in Türkiye, and the interview form was finalized with the feedback received from the relevant academicians. The statements directed in the interview form are as follows;

Table 3. Interview Questions

No.	Questions
1	Which types of waste are more common in the kitchen? (Product, packaging, energy, etc.)
2	At what stages does waste production intensify? (Production, storage, cooking, etc.)
3	If you separate waste by type in the kitchen, what method do you follow?
4	Which materials would you define as recyclable?
5	What can be done to create a waste-free kitchen during the menu planning phase?
6	How can you minimize the use of disposable materials?
7	What kind of trainings are provided in your organization on waste-free kitchen management?
8	How do you evaluate your choice of kitchen tools and utensils in terms of sustainability?
9	Do you cooperate with your suppliers on recyclable packaging?
10	What do you do to save energy and water in kitchen processes?
11	What steps do you take to use renewable energy sources within the scope of environmental awareness?

These interviews were conducted using semi-structured interview method, and it was stated that the interviewees could express their thoughts on the subject in the form of questions and answers if they wished, or they could express their thoughts on the subject as they wished. Participants whose mother tongue was different were told that they could express

their opinions in English if they wished and that the researcher could translate it into Turkish at the end of the interview, and if they wished, an interview could be conducted in English in a conversational atmosphere. The interviewees were left completely free to express their thoughts in the way they wanted and to achieve the purpose of obtaining in-depth

opinions, which is the nature of the interview, in the best way possible. The interviews were first audio recorded and then transcribed on computer. The data obtained were analysed with MAXQDA computer-aided qualitative data analysis system.

4. Findings

Themes and sub-codes were created in line with the information obtained as a result of the literature review and the answers received from the participants. Analyses were made through these themes and codes. Figure 1 shows the code hierarchy:

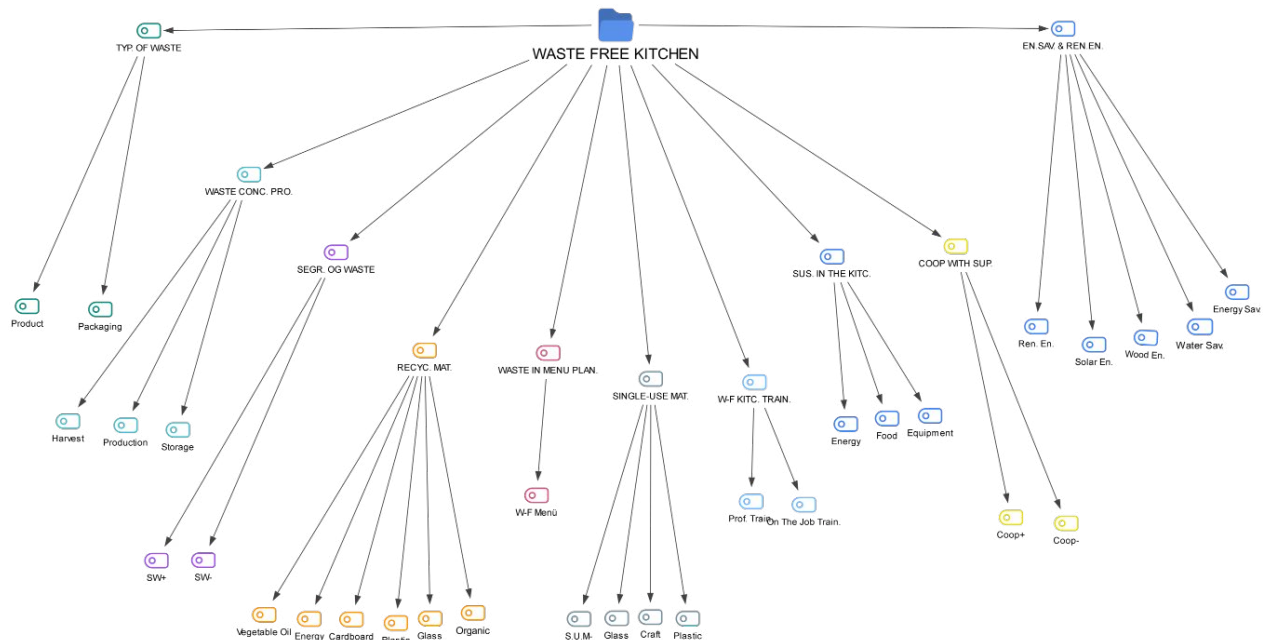


Figure 1. Code Hierarchy of the Research

The hierarchical structure of the codes is given in the figure. Themes and sub-codes are listed in Table 4 as a whole with their explanations.

Table 4. Coding Hierarchy of the Research

1. Typ. of Waste	2. Waste Conc. Pro.	3. Segr. of Waste	4. Recyc. Mat.	5. Waste in Menu Plan
1.1. Product	2.1. Production	3.1. SW+	4.1. Organic	5.1. W-F Menu
1.2. Packaging	2.2. Harvest	3.2. SW-	4.2. Cardboard	
	2.3. Storage		4.3. Glass	
			4.4. Vegetable Oil	
			4.5. Plastic	
			4.6. Energy	
6. Single-Use Mat.	7. W-F Kitc. Train.	8. Sust. in the Kitc.	9. Coop. with Sup.	10. En. Sav. & Ren. En.
6.1. S.U.M-	7.1. On the Job Train.	8.1. Food	9.1. Coop+	10.1. Energy Sav.
6.2. Glass	7.2. Prof. Train.	8.2. Energy	9.2. Coop-	10.2. Water Sav.
6.3. Plastic		8.3. Equipment		10.3. Solar En.
6.4. Craft				10.4. Ren. En.-
				10.5. Wood En.

The main themes given in Figure 1 and Table 4 and some of the sub-codes forming the themes were created using abbreviations. The abbreviations writ-

ten in the themes and their full text versions are as follows:

1. Types of Waste	Typ. of Waste
2. Waste Concentration Processes	Waste Conc. Pro.
3. Segregation of Waste	Segr. of Waste
4. Recyclable Materials	Recyc. Mat.
5. Waste in Menu Planning	Waste in Menu Plan.
6. Single-Use Material	Single-Use Mat.
7. Waste-Free Kitchen Trainings	W-F Kitc. Train.
8. Sustainability in the Kitchen	Sust. in the Kitc.
9. Cooperation with Suppliers	Coop. with Sup.
10. Energy Saving & Renewable Energy	En. Sav. & Ren. En.

In the sub-codes, "+" indicates positive and "-" indicates negative opinions. In order to avoid confusion, the sub-codes of the required codes were started with the abbreviation of that code and "+" and "-" symbols were added to indicate positivity or negativity. For example; "Segr. of Waste" theme sub-code 'SW-' was used to code that waste is not separated in kitchens. "Single-Use Mat." theme's sub-code 'S.U.M-' indicates that disposable materials are not used. "En. Sav. & Ren. En." theme, the subcodes "Energy Sav., Water Sav., Solar En., Ren. En. and Wood En." sub-codes indicate energy saving, water saving, solar energy, renewable energy and wood energy.

The most emphasized code in the theme of "Typ. of Waste" was "Packaging", the most emphasized code in the theme of "Segr. of Waste" was "SW+", and the most emphasized code in the theme of "Waste Conc. Pro." was "Production". In the theme of "W-F Kitc. Train.", the most emphasized code was "On the Job Train.", in the theme of "En. Sav. & Ren. En.", the most emphasized codes were "Energy Sav." and "Water Sav.", and in the theme of "Recyc. Mat.", the most emphasized code was "Organic". In addition, the only emphasized code in the theme "Waste in Menu Plan." was the code "W-F Menu". In the theme of "Sust. in the Kitc.", the most emphasized codes were "Energy" and "Equipment" respectively, and in the theme of "Coop. with Sup.", the codes "Coop+" and "Coop-" were expressed with the same emphasis with an equal statistical result. In

the "Single-Use Mat." theme, the most emphasized code was "S.U.M-".

When the statistics of the sub-codes are analyzed in detail, it is seen that packaging waste is generally generated as waste in Michelin Guide starred restaurants and organic waste is very little waste. As a result of the analysis, it has been determined that wastes are generally generated during the production phase, the wastes generated are separated, waste-free menus are preferred, personnel are trained with on-the-job training, attention is paid to energy and water saving, sustainable energy and equipment use is important, and disposable materials are not included too much. This data proves that the waste-free kitchen concept is feasible in Michelin-starred restaurants.

Table 5 shows the 50 words most emphasized by the chefs in the word frequency analysis combined in the interview interviews. Before the word frequency analysis was created, some words were removed. The omitted words are conjunctions, prepositions, pronouns, numbers, etc. that would not make any sense when added to the word frequency. Words such as "Waste", "Products", "Energy", "Enterprises" shown in the word frequency are the words with the highest number of hits. The frequency of words is proportional to the number of strokes they receive. Some words are also combined. For example; words such as "waste", "waste", "of waste", "to waste" were added to the word "Waste".

Table 5. Frequency Analysis of Combined Words in Interview Interviews-50 Words

	Word	Word Length	Frequency	%		Word	Word Length	Frequency	%
1	Waste	4	61	2,40	26	Steel	5	7	0,28
2	Products	7	53	2,08	27	Trainings	9	7	0,28
3	Energy	6	30	1,18	28	Sources	10	7	0,28
4	Businesses	10	19	0,75	29	Guests	10	7	0,28
5	Water	2	19	0,75	30	Savings	8	7	0,28

6	Sustainability	17	19	0,75	31	Oil	4	7	0,28
7	Transformation	7	14	0,55	32	Convertible	16	6	0,24
8	Sun	5	14	0,55	33	Economic	8	6	0,24
9	Organic	7	14	0,55	34	Electricity	8	6	0,24
10	Rubbish	3	12	0,47	35	Coal	6	6	0,24
11	Wood	4	12	0,47	36	Wind	6	6	0,24
12	Paper	5	11	0,43	37	Bottles	8	6	0,24
13	Kitchen	6	11	0,43	38	To the producer	9	6	0,24
14	Waste Free	7	10	0,39	39	Food	4	5	0,20
15	Decomposition	10	10	0,39	40	Preparation	8	5	0,20
16	Carbon	6	10	0,39	41	Minimise	8	5	0,20
17	Material	7	10	0,39	42	Care	4	5	0,20
18	Single	3	10	0,39	43	Disposable	9	4	0,16
19	Cam	3	9	0,35	44	Service	6	4	0,16
20	Menu	4	9	0,35	45	Plate	5	4	0,16
21	Michelin	8	9	0,35	46	Again	7	4	0,16
22	Staff	8	9	0,35	47	Loss	4	4	0,16
23	Plastic	7	8	0,31	48	Fire	4	3	0,12
24	Food	5	8	0,31	49	Animals	10	3	0,12
25	Packaging	7	7	0,28	50	Compost	7	3	0,12

Word clouds were created from the most frequently used and emphasized words in the interviews. A one-word word cloud created by combining some

words and removing meaningless words is given in Figure 2.



Figure 2. Word Cloud Created in Interviews According to Participants' Responses-50 Words.

The word cloud given in Figure 2 consists of the 50 most emphasized words. Some words were removed before creating the word cloud. The omitted words are conjunctions, prepositions, pronouns, numbers, etc. that would not make any sense when added to the word cloud. "Waste", 'Sustainability' and 'Products', which are in the center of the word cloud and are shown as larger than other words, are the words that receive the most hits. The size of the words is proportional to the strokes they receive. Some words are also combined. For example, words such as "product", "in product", "products" were added to the word "Products". When the word cloud is analyzed in detail, it is seen that the words are related to the themes of waste and sustainability.

When we look at the word frequency and word cloud created from the most frequently used words; it is an expected result that the words "Waste", "Products" and "Sustainability" are among the words with the

highest number of hits. In addition, other words carry clues to reveal the common views of the interview participants. For example, it is understood from the word cloud that the participants mentioned sustainability a lot. This reveals that chefs have a high awareness of sustainability. In addition to this, the fact that the words organic, segregation and recycling are emphasized a lot shows how much importance Michelin starred establishments attach to waste and recycling.

Table 6 shows 30 expressions from the most emphasized word groups by the chefs in the frequency analysis of word combinations combined in the interviews. In the word combinations frequency analysis, word groups such as "Carbon Foot", "Renewable Energy" and "Waste-Free Kitchen" are the binary combinations with the highest number of strokes. The frequency size of the words is proportional to the strokes they receive.

Table 6. Frequency Analysis of Word Combinations-30 Words

	Word Combination	Frequency	%		Word Combination	Frequency	%
1	Carbon footprint	8	20,51	16	Glass waste	2	5,13
2	Renewable energy	8	20,51	17	Energy saving	2	5,13
3	Waste-free kitchen	7	17,95	18	We can benefit	2	5,13
4	Solar energy	7	17,95	19	In the sunlight	2	5,13
5	Charcoal	6	15,38	20	In the compost machine	2	5,13
6	Organic waste	6	15,38	21	Menu planning	2	5,13
7	Wind energy	5	12,82	22	Our focus	2	5,13
8	Packaging waste	4	10,26	23	In a wood oven	2	5,13
9	Glass bottles	3	7,69	24	Takeaway service	2	5,13
10	Energy sources	3	7,69	25	Stainless steel	2	5,13
11	Michelin star	3	7,69	26	Slow food	2	5,13
12	Tasting menu	3	7,69	27	Water resources	2	5,13
13	Reusable	3	7,69	28	Chicken skin	2	5,13
14	Waste generation	2	5,13	29	Ministry of Tourism	2	5,13
15	Waste oil	2	5,13	30	Renewable energy sources	2	5,13

In the frequency analysis of word combinations, "Waste-Free Kitchen" is among the most repeated answers. The combinations of "Carbon Foot" and "Renewable Energy" received a value above 20% in the frequency analysis. The frequency analysis reveals a result in direct proportion with the content of the research.

Binary word combinations were created from the most frequently used words in the interviews. The word cloud created from binary words is given in Figure 3.

The word cloud shown in Figure 3 consists of the 30 most emphasized word combinations. Before creating the word cloud, some words were removed.



Figure 3. Word Cloud Combinations Generated According to Participants' Answers

The omitted words are conjunctions, prepositions, pronouns, numbers, etc. that would not make any sense when added to the word cloud. "Waste-Free Kitchen", 'Renewable Energy' and 'Carbon Footprint', which are in the center of the word cloud and are shown as larger than other words, are the word groups that receive the most hits. The size of the words is proportional to the strokes they receive. When the word cloud is analyzed in detail, it is seen

that the words are related to the themes of waste-free kitchen and renewable energy.

The single case model obtained as a result of the answers given by the participants to the questions posed in the interviews is given in Figure 4 in a holistic structure. In the model, the sub-codes that make up the themes are indicated by clusters. Presenting the model in a holistic structure is important for the comprehensibility of the research.

SINGLE-CASE MODEL

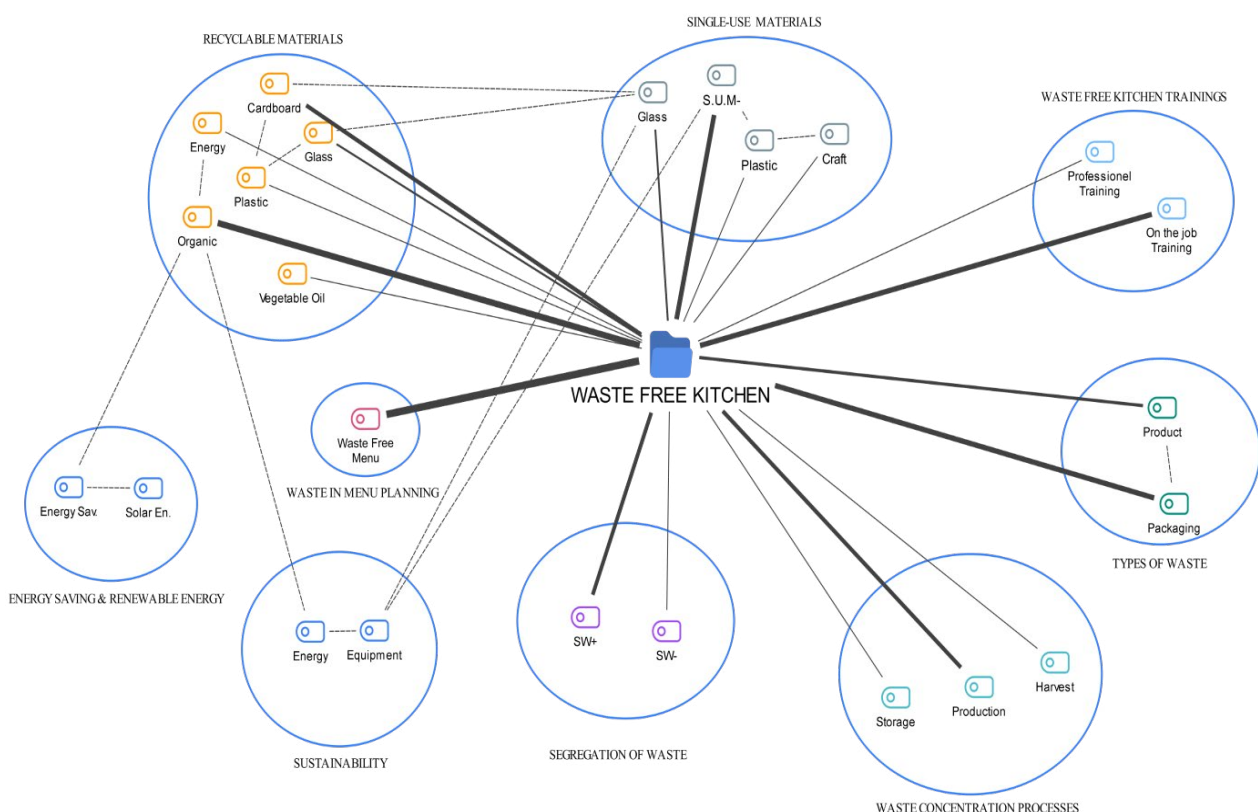


Figure 4. Waste-Free Kitchen Management in Enterprises: Single-Case Model - Holistic View

In Figure 4, the relationships between themes and codes are presented holistically. The interrelationships between them are explained with drawn lines. Direct lines indicate direct reciprocal relationships, while dashed lines indicate indirect relationships. The thickness of the lines indicates the severity of the relationship. Codes under the same theme are circled and the theme name is indicated. In this way, it was aimed to prevent confusion by looking at the relationships between the codes as a whole. Looking at this relationship map created at the end of the analysis of the interviews with the participants; it is thought that the statements of the participants regarding waste-free kitchen practices are intensely related to each other.

In Figure 4, the central phrase “waste-free kitchen” is in a relationship with all themes and codes. The thick lines in the model clearly show that there is a very strong direct relationship between the “Waste-Free Kitchen” theme and the “Waste-Free Menu” code. Creating waste-free menus is among the biggest activities that can prevent waste generation in kitchens. As stated by the chefs, the more waste-free the menu is designed, the less waste is generated in the enterprises.

According to the views of the participants, in the theme of recyclable materials, the codes “Organic” and “Cardboard” have a strong relationship with waste-free kitchen. At the same time, the code “Organic” has an indirect strong relationship with the code “Energy Saving”. The “Equipment” code in the theme of sustainability in kitchens is not directly related to waste-free kitchen. However, the “Equipment” code has an indirect relationship with the “S.U.M-” and “Glass” codes. The important conclusion that can be drawn from this is that disposable materials are not preferred in the selection of equipment.

When the figure is analyzed in detail, it is seen that the code “SW+” in the theme of “Waste Separation” is strongly associated with waste-free kitchen, while the code “SW-” is associated with waste-free kitchen with a thinner line. Waste separation is one of the most important issues emphasized for these

enterprises. However, the fact that there are enterprises that cannot separate waste is not related to themselves, but to the private sector and public institutions.

In the theme of the processes where waste is concentrated, it is seen that the “Production” code is expressed strongly, while the lines in the “Storage” and “Harvesting” codes are thinner. In these Michelin-starred establishments, it is stated that waste is generated mostly in production, but waste is also generated in storage and harvesting processes. It is stated in the statements of the chefs that the wastes generated in production are composted and reused, used in different areas in kitchens and sent as feed to animals.

The fact that the lines connected to the “Packaging” waste code in the waste types theme are thick and direct indicates that packaging waste is more common in these enterprises compared to other waste types. In this theme, not only packaging waste but also product waste stands out. In the food and beverage sector, products and the packaging in which they are packaged constitute a very large percentage of waste.

Waste-Free Kitchen Management in Businesses: In the Single-Case Model - Holistic View, the lines of the codes “W-F Menu”, “Organic”, “On the Job Train.”, “Packaging” and “S.U.M-” are thicker than the lines of the other sub-codes. These thick lines reveal that in waste-free kitchen practices, attention is paid to waste generation in menu selection, organic waste is generated but these waste types are utilized, on the job training is provided to employees about waste, packaging waste is unfortunately the most common type of waste, and finally, disposable materials are not preferred.

Two case models were created as a result of the answers given by the participants to the questions posed in the interviews. Figure 5 shows the two case models comparing the starred city and seaside establishments in the Michelin Guide. The codes showing similarities or differences are clearly seen in the model.

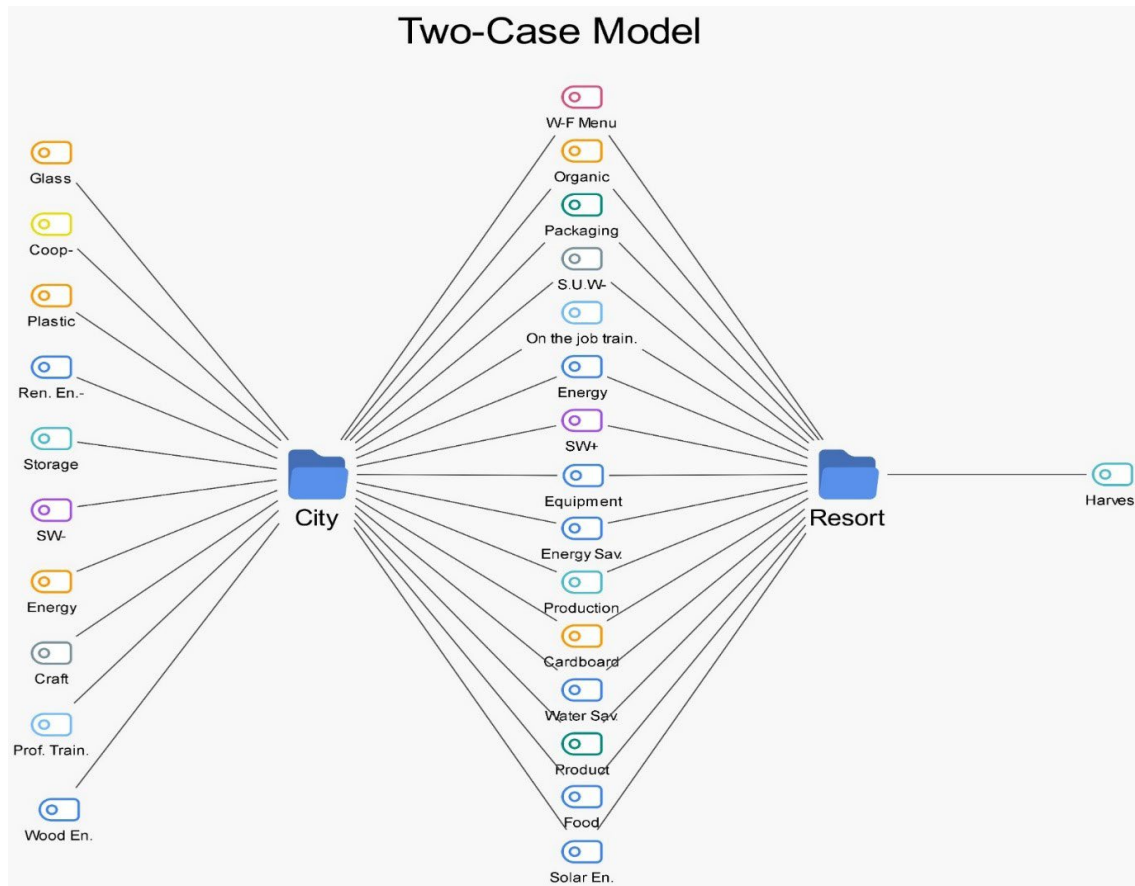


Figure 5. Two Case Models Comparing City and Beach Restaurants

The codes on the left and right in the figure represent the points of divergence between city and coastal enterprises. The codes in the middle show the common thoughts of the enterprises classified in two different types. When the figure is analyzed in detail; one of the most striking issues in city enterprises is the use of renewable energy. It is more difficult to use solar energy or wind energy turbines in these enterprises located in city centers. However, coastal enterprises are more advantageous in terms of using solar energy in terms of both location and surface area. Beach businesses, also called summer businesses, can use solar energy in summer and winter.

As seen in the two case models, city restaurants differ from beach restaurants in terms of implementing professional training. The reason for this may be the higher accessibility to training in city centers. On the job training seems to be more possible in coastal restaurants. In addition, the use of wood energy in city restaurants differs from coastal restaurants. In addition, it is seen that cooperation with suppliers is not possible in city restaurants. Sustainable co-operation with suppliers in urban restaurants is becoming more difficult due to logistical challenges, cost pressures and supply chain fluctuations (Çetin, 2022; Food Logistics Association Report, 2021).

In Figure 5, the common codes of both business types are waste-free menu, organic, packaging, no disposable materials, on-the-job training, energy,

waste separation, equipment, energy saving, production, cardboard, water saving, product, food and solar energy. The commonality of these codes is indicated in the common field in the two case models. At this point, the most striking situation is the preference for waste-free menus in menu planning in both types of businesses. With the increase in environmentally friendly practices in recent years, it is seen that menu planning to reduce waste production has come to the fore in beach and city restaurants (Zhang et al., 2020). In addition to this, it is seen that both business types have the same opinion on the preference of disposable materials, and they do not prefer them in their businesses.

Finally, the only difference that distinguishes beachfront establishments from city restaurants is the harvest code. Because coastal establishments can grow their own products, they observe waste generation during the harvest phase. Organic production is more difficult in city hotels. For this reason, the processes where waste is concentrated in city hotels are generally the production and storage stages.

5. Conclusion, Discussion and Recommendations

The Michelin Guide is recognised in the gastronomy world as the most established and reliable guide on a global scale (Subakti, 2013). The guide is recogni-

sed as a source of information that is respected and consulted by both chefs and customers, especially in Europe, as it evaluates and recommends places in a professional manner (Johnson et al., 2005). This is one of the main reasons for selecting the establishments in the Michelin Guide. This research aims to analyse the waste-free kitchen management strategies and sustainable kitchen management practices of starred restaurants in the Michelin Guide in Türkiye. As a result of the analysis of the data obtained, it was determined that these restaurants have a significant awareness of sustainability and waste-free kitchen management.

According to the results obtained from the research, the idea of zero waste is of great importance in the waste management policies in the kitchens of businesses awarded with a star in the Michelin Guide. However, it was determined that the main goal of these prestigious businesses subject to the research is customer satisfaction, and in some conditions, they do not consider food waste for customer satisfaction. In the study, the most important reasons for waste generation in kitchens can be listed as the uneducated perspective of kitchen staff, lack of awareness of suppliers and lack of training in suppliers, insufficient policies of public institutions in recycling, deficiencies in sustainable product range, energy waste and inadequacies in renewable energy production.

As a result of the interviews conducted by the researcher within the scope of the study and the answers given by the chefs who participated in the interview, it was concluded that the businesses that make up the sample are generally restaurants that serve their customers with modern presentations in the luxury category. In line with the data obtained, although the instant customer capacity of these businesses is low compared to ordinary (casual) businesses such as artisan restaurants, the number of employees is high. One of the most important factors in low waste generation in these businesses is low production and high number of employees. Because these businesses usually offer high quality menus to their guests with tasting menus.

According to the criteria in the Michelin Guide, sustainability and waste management are among the key elements to be considered. The managers and staff of these enterprises have demonstrated an environmentally sensitive and nature-protecting approach throughout their years of operation. Regardless of whether it is a newly opened business or a half-century-old business, all starred businesses adopt environmentally friendly practices. In the conclusion part of the research, the following statements were reached within the scope of the explanations of the chefs who voluntarily participated in the interview:

Michelin-starred establishments offer luxury service with a modern kitchen concept and generally work

with a reservation system. Thanks to this structure, production planning is more controlled and waste rates are quite low. They are more committed to zero waste philosophy compared to open buffet and catering establishments. These businesses, which have an innovative production approach, operate on the axis of sustainability by valuing all resources such as water, soil, nature, food, guests and employees. The commitment of chefs to their ethnic origins and local values increases the use of local products in menus, which brings along an environmentally friendly approach within the scope of the '0 km movement' that reduces the carbon footprint. In waste-free kitchen practices, dishes prepared with creative techniques based on roots, geography and values attract attention, while the use of quality ingredients is prioritised and food is not allowed to be wasted. The limited customer capacity also minimises waste generation in production and storage processes. The almost equal number of guests and employees provides a controlled and planned working environment at every stage of the kitchen. Some establishments provide only evening service, which limits production and reduces the amount of waste. The long or short operating period of the establishment does not stand out as a determining factor in terms of waste-free kitchen practices.

During the Covid-19 pandemic process, these businesses, like all sectors, were negatively affected. The fact that disposable products have become mandatory within the scope of hygiene measures has led to an increase in the waste population. Data analyses showed that the highest amount of packaging waste was generated, followed by food waste. However, most of the organic food waste was utilised as animal feed, composted or used in the preparation of new products. In menu planning, all establishments make serious efforts to create a 'waste-free menu', especially those using a tasting menu adhere to this strategy. It was stated that public institutions, NGOs and private sector representatives are insufficient in recycling processes. When compared to the practices in Europe, it is emphasised that recycling awareness in Turkey is not yet at the desired level. For this reason, it is stated that recycling should become a philosophy of life for individuals. It has been determined that the enterprises that produce their own agricultural production produce less waste and store surplus products with traditional methods. In addition, those who have recycling areas and composting equipment within the enterprise have an advantage in this process. However, many chefs complain about the inadequacy of existing recycling systems and the lack of legal regulations.

According to the sub-codes, the most common recycling material is organic waste, while energy waste is mentioned at the lowest rate. Since energy use is an important cost item for all enterprises, water and energy waste is avoided and especially solar ener-

gy is preferred. In some enterprises, the use of wood-powered systems such as stone ovens provides an advantage in terms of energy saving. Nevertheless, the use of renewable energy is generally low in the sector due to lack of infrastructure and insufficient incentives. The most common areas where food waste is generated are production and harvesting processes. Unconscious production, primitive harvesting techniques and open buffet systems cause food loss from the field to the table. It was observed that most of the trainings on sustainability and waste management in kitchens took place on the job, and only one establishment received professional training. In the sustainability policies of Michelin starred establishments, after energy, equipment and food sustainability are ranked in order of importance. Another noteworthy element is the cooperation with suppliers. Half of the interviewed enterprises stated that suppliers are not in sufficient co-operation on recycling. It has been observed that suppliers acting with commercial concerns are insensitive in this regard.

These enterprises, which avoid disposable products, prefer steel, glass, polycarbonate and similar washable, reusable equipment. Disposable products are not preferred except for the pandemic. In some large enterprises, leftovers from the buffet system that do not threaten food safety are utilised in the staff cafeteria, thus preventing food waste. Organic food waste is utilised on plates by creative chefs using different techniques to minimise waste. Recycled waste water is used in garden landscaping, and drought-resistant plants are preferred. As for the recycling of vegetable waste oil, some businesses are in favour of this practice due to the small economic support. On social media channels, comments of customers who are not knowledgeable or expert in gastronomic experience are shared and these comments also affect prospective customers who want to get opinions. In this respect, it is important not only for the gastronomic experience, but also for general media literacy for conscious consumers to pass the reality levels of the comments they read through their own filters and make decisions accordingly (Olaru, 2023). Finally, thanks to environmentally friendly practices such as the Michelin Guide, Slow Food, Protect Your Food and Orange Flag, awareness of waste-free kitchens is raised and both producers and consumers are made aware. It is emphasised that this understanding should be generalised throughout the sector.

The data obtained in the interviews were coded and analysed in order to protect the confidentiality of the participants' identities and to act in accordance with the rules of scientific ethics. In this way, the identities of the participants were prevented from being disclosed.

The results that the researcher inferred as a result of the interviews are as follows;

As a result of the interviews, it was observed that product and packaging waste is high in restaurant businesses, and energy waste is also one of the cost items. When the concept of waste is analysed in depth, it is determined that product waste occurs in all processes from harvesting, production, storage and cooking of products. It has been concluded that waste separation activities in kitchens are not sufficient and that municipalities and public institutions have a great job in this regard. The majority of the participants commonly mentioned organic, cardboard, glass and plastic wastes as recyclable materials. However, it was determined that organic food waste is composted and utilised in different products in kitchens. It was determined that all Michelin starred establishments pay attention to zero waste in menu planning. It was stated that disposable products are not used too much in terms of the use of disposable materials. Waste-free kitchen trainings are generally carried out as on-the-job training. The rate of professional training was found to be low. Kitchen tools and equipment are generally preferred from sustainable products. It has been observed that the biggest complaints are the deficiencies experienced in cooperation with suppliers on zero waste. All businesses are especially keen to save energy and water. It is concluded that coastal enterprises are more advantageous in terms of renewable energy thanks to the number of sunny days and the land area of the enterprise.

All these results are explained in line with the data obtained from one-to-one interviews with the chefs of Michelin Guide establishments. Based on the results obtained from the study, some suggestions are offered to related food and beverage businesses and researchers.

5.1. Recommendations for Food and Beverage Businesses;

Food waste is a major problem for businesses. Sending these wastes to landfills not only causes many environmental problems, but also means destroying the soil, which is a valuable treasure. By recycling food waste, it is possible both to prevent environmental pollution and to add the necessary nutrients for plants to the soil. Composting food waste allows for a 90% reduction in volume. In addition, the efficiency it provides to the soil as fertilizer is more efficient and healthier compared to artificial fertilizers. This is an important gain for the environment. Thanks to on-site composting of food waste, businesses will gain many economic, social and health benefits such as preventing environmental pollution, reducing carbon footprints, reducing waste going

to landfills, and using composted organic waste in green areas. It is known that untrained and inexperienced personnel in kitchens cause waste and food waste. The high staff turnover rate in the business and the fact that employees work in different businesses at the end of the season affect the amount of food waste in the kitchen. Since it takes time for a new staff to get used to and get to know the business, mistakes in preparation, cooking and storage areas can be high in this process. It will be important within the scope of the sustainability policy of the business that the chefs working in senior positions in the kitchen prefer people with high education level, conscious about waste, protecting the environment and nature, valuing food and having experience in the selection of personnel.

All personnel working in the enterprise should sensitively know the value of the products. Positive discrimination should be given to the personnel who receive zero waste and sustainability-themed training. In this way, employees will strive to take part in the system in line with their own wishes. The fact that individuals working in the sector have more vision with overseas trainings will provide them with the opportunity to find jobs in prestigious and quality businesses. In this way, the motivation of employees working in the food and beverage sector will increase. Motivating employees with competitions, sweepstakes, prizes and small gifts is thought to be effective in terms of job and business satisfaction and therefore in terms of reducing waste, creating a teamwork will be effective in the formation of waste and waste. One of the most important reasons for waste generation is that kitchen staff is faced with work beyond their capacity. The work intensity should be prepared by the kitchen chef and the purchasing unit within the planning. In this way, staff work peace will be ensured. The high motivation of each employee will allow him/her to internalize the business and believe that he/she is a part of that business. Thus, waste generation will cause discomfort in every working individual.

It has been determined in the literature that food and packaging wastes are high in consumption patterns such as open buffet, table d'hôte and take-away. Instead of such concepts, especially restaurant businesses should be supported to adopt a "tasting menu" approach. When creating recipes in menu planning, products with the possibility of zero waste should be preferred whenever possible. In businesses, there may be some decrease in the self-sacrificing behavior of the personnel who are professionally dissatisfied and demotivated. It is thought that keeping the organizational commitment and job satisfaction of the personnel high with activities such as promotions, raises, personnel nights, personnel of the month, personnel of the year, special birthday celebrations for the personnel by the business authorities and administrative management will be ef-

fective in the work quality and food waste reduction efforts to be expected from the personnel.

5.2. Recommendations for Researchers;

This research covers the establishments in the Michelin Guide in Türkiye. In future studies, the differences between the starred establishments in Türkiye and the establishments abroad on waste can be investigated. Thus, common areas and differentiating codes in the two case models can be identified. In this study, an interview technique was conducted with business chefs. In future studies, the perceptions, attitudes and reasons for preference of guests who prefer Michelin-starred establishments on waste can be investigated. There were some limitations in reaching the enterprises in the research. In future studies, the universe can be expanded by receiving more support from public institutions and the private sector.

Scientists who will conduct research can travel to Michelin-starred enterprises abroad with the support programs of the government and look at waste management from a different perspective. Similar and different sustainable practices between environmentally friendly hotels affiliated to the Ministry of Tourism and Michelin-starred restaurants can be one of the areas of study for new researchers. Waste management practices in the kitchens of Michelin Guide starred restaurants and green starred restaurants can be compared. Thus, the effects of green practices on waste can be revealed. Researchers who will study the restaurants in the Michelin Guide can be recommended to work in the restaurants, provided that the restaurants accept. In this way, on-site observations can be made.

5.3. Limitations and Future Research

Some important limitations were encountered in the research, especially in the data collection process. The most determining factor in the emergence of limitations is the scope of the research. The fact that the research covers the restaurants that have been awarded a star in the Michelin Guide across Türkiye has made the data collection process difficult and has led to the emergence of some distance-related constraints and limitations. In addition, due to this scope, as in many academic researches, there were some limitations due to time, distance and cost. Despite these limitations, a significant effort was made to complete the research with maximum data and minimum errors. Another important constraint in the data collection process and for the entire research in general is the fact that the businesses in this luxury category take their place in the sector at a busy business tempo every period. In order to obtain in-depth information more easily, it was aimed to collect all data face-to-face.

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The study was conducted with participants and they live in İstanbul, İzmir and Muğla. In addition, purposive sampling method was used in the sample. The fact that only 12 restaurant establishments in Türkiye have Michelin Stars limits the population of the study. For future research, Michelin Starred establishments not only in Türkiye but also in a few different countries can be included in the population. However, spending certain periods of time in the enterprises in the study can be presented as a suggestion for future researchers.

The ethics committee report on the interview questions prepared at the point of achieving the objectives was received from Nevşehir Hacı Bektaş Veli University on 30.05.2024 with the number number 2024.06.113 of the Scientific Research and Publication Ethics Committee.

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