Nutrition Research and Practice 2016;10(1):108-114

http://e-nrp.org

Consumer perceptions on sustainable practices implemented in foodservice organizations in Korea

Seyoung Ju and Hyeja Chang§

Department of Food Science and Nutrition, Dankook University, 126, Jukjeon-ro, Suji-gu, Yongin 16890, Korea

BACKGROUND/OBJECTIVES: Sustainable practices in foodservice organizations including commercial and noncommercial ones are critical to ensure the protection of the environment for the future. With the rapid growth of the foodservice industry, wiser usage of input sources such as food, utilities, and single use packaging should be reconsidered for future generations. Therefore, this study aims to investigate the customer's perceptions on sustainable practices and to identify the relationship among sustainable practices, social contribution and purchase intention.

SUBJECTS/METHODS: The study was conducted using content analyses by reviewing articles on sustainable food service practices published domestically and abroad. Thereafter, data were collected with a face-to-face survey using a questionnaire and analyzed with factor analyses and multiple regressions.

RESULTS: Sustainable practices classified with factor analysis consisted of 6 dimensions of green food material procurement, sustainable food preparation, green packaging, preservation of energy, waste management, and public relations on green activity, with a total of 25 green activities in foodservice operations. Consumers were not very familiar with the green activities implemented in the foodservice unit, with the lowest awareness of "green food material procurement (2.46 out of 5 points)", and the highest awareness of "green packaging (3.74)" and "waste management (3.28). The factors influencing the perception of social contribution by foodservice organizations among 6 sustainable practice dimensions were found to be public relations on green activity ($\beta = 0.154$), waste management ($\beta = 0.204$) and sustainable food preparation ($\beta = 0.183$). Green packaging ($\beta = 0.107$) and the social contribution of the foodservice organization ($\beta = 0.761$) had strong relationships with the image of the organization. The purchase intentions of customers was affected only by the foodservice image ($\beta = 0.775$).

CONCLUSIONS: The results of this study suggest that sustainable practices by foodservice organization present a good image to customers and increase the awareness of valuable contributions that benefit the customer as well as the community.

Nutrition Research and Practice 2016;10(1):108-114; doi:10.4162/nrp.2016.10.1.108; pISSN 1976-1457 eISSN 2005-6168

Keywords: Sustainable practices, foodservice, purchase intention, Image, social contribution

INTRODUCTION

Recently, concerns about sustainable practices in foodservice have been on the rise. According to the National Restaurant Association in the United States, foodservice operations use enormous amounts of water, electronic, and gas energy [1]. With the large number of foodservice facilities in Korea, 796,384 foodservice business establishments and 43,557 foodservice institutions in 2013 according to the Ministry of Drug and Food Safety [2], its ripple effects on the economy are considerable. In the United States, the sales volume of the foodservice sector reached $683.4 billion in 2014 [3]. In Korea, the sales volume of the noncommercial foodservice industry was reported to be approximately 18.9 trillion won in 2012 [4] while that of the commercial foodservice sector totaled about 68 trillion won [5]. Considering the sales volume of foodservice operations, it is expected that the quantity of input resources used for food productions (e.g., food material, packaging, energy, water) will continue to increase.

Given the steady growth of the foodservice industry, sustainable management in restaurants is expected to play a critical role in ensuring the protection of the environment for the future. Sustainability is defined as "the ability to meet the needs of today without compromising the ability of future generations to meet their needs." [6-8] According to guidelines released by the U.S. Environment Protection Agency, sustainability efforts were suggested in the following four dimensions: (1) the built environment; (2) water, ecosystems, and agriculture; (3) energy and the environment; and (4) materials and toxins. With these guidelines, the National Restaurant Association (NRA) has set sustainable standards for restaurants [9].

Sustainable management is a combination of sustainable development and corporate social responsibility. In the 1987 report titled "Our Common Future", sustainable development

This study was supported by the National Research Foundation (2014K2A8A2074130) and partially supported by the Dankook University (R-0001-22431)
§ Corresponding Author: Hyeja Chang, Tel. 82-31-8005-3175, Fax. 82-31-8021-7200, E-mail. hjc10@dankook.ac.kr
Received: June 5, 2015, Revised: October 20, 2015, Accepted: October 21, 2015

was described as the activities of an organization that promote corporate value by ensuring a competitive edge for the organization and generates continuous outcomes in terms of economic, environmental, and social perspectives [6]. Meanwhile, corporate social responsibility refers to the intention of business organizations that do the right things and contribute to the society beyond the requirements of legal and economic needs. In addition, green management, which is a term widely used alongside sustainability, is the effort by an organization to take social and ethical responsibility in conserving resources and energy and using them efficiently to minimize carbon dioxide gas emissions and environmental contamination [10,11].

Since the declaration of the Kyoto Protocol, a series of research has been conducted to set the standards of sustainable practices and to investigate consumer norms and purchase intentions related to foodservice operations in Canada, EU (European Union), and the US [9,12-18]. In Korea, research on setting and reviewing sustainable practices in foodservice operations has been limited [19-20]. In addition, previous studies stated that customer education and the involvement of top management play critical roles in the accomplishment of sustainable practices within the foodservice sector. However, most foodservice organizations have given little attention to customer education and customer involvement in their sustainable practices [13,19,21].

Therefore, this study aims to investigate the awareness of customers about the sustainable practices of the foodservice organizations they patronize and to identify the relationship between sustainable practices and customer purchase intention, foodservice image and social responsibility.

SUBJECTS AND METHODS

Study design and subject

Face-to-face surveys were used to collect data. Convenience sampling was used to select the foodservice facilities and customers. Investigators visited the foodservice institutions of managers willing to participate in the survey. The foodservice facilities included schools, universities and offices in Seoul and Gyeonggi province. One foodservice organization in office operated with a complex format including contracted franchises or independent outlets in addition to the foodservice operation. The questionnaire was administered through face-to-face surveys with consumers who were willing to participate voluntarily and the questionnaire was collected immediately after the survey was completed. Data from a total of 262 respondents were used for the analysis. The study was approved by the University's Institutional Review Board.

Contents of questionnaire

The survey was conducted from August 20, 2014 to March 10, 2015 with a 38-item self-administered questionnaire. Based on the literature review, the questionnaire was designed to contain 3 sections: demographic variables (5 items), the perception of customers regarding sustainable practices (25 items), and contributions and image of the foodservice organization that implemented sustainable practices including the purchase intention of consumers (8 items). The questions on sustainable practices in the foodservice industry were adopted from the Green Restaurant Association (GRA) [9], the study by Wang *et al*. [12] in Taiwan, and the NRA guidelines on sustainable practices in the United States [1]. Sustainable practices, consumers' beliefs in the foodservice organization's sustainable practices, and the purchase intentions of consumers regarding organizations that implemented sustainable practices were adopted from previous studies [13,19,21]

The respondents rated their perceptions of organizations' sustainable practices, contributions, and image as well as their purchase intention with a 5-point rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). In the section for the customer's perception of sustainable practices provided by the organization, an option for no idea about sustainable activities was included but was assigned no score.

Statistics analysis

Data were analyzed with the Statistical Package for Social Science (SPSS version 15.0, SPSS Inc. Chicago, IL). Factor analysis, mean, standard deviation and multiple regressions were calculated for the analyses. Factor analysis was conducted with varimax rotation methods.

RESULTS

Demographic profile of the respondents

A total of 262 out of 265 participants completed the questionnaire. Table 1 shows the general characteristics of the respondents. Most of the respondents were in their twenties

Table 1. Description of the respondents (N = 262)

Variables	Frequency	Percentage (%)
Gender		
Male	71	26.8
Female	191	72.1
Age (yrs)		
10-19	113	42.6
20-29	147	55.5
30-39	2	0.8
Occupation		
Middle & high school student	114	43.5
College student	144	54.3
Graduate student	2	0.8
Other	2	0.8
Foodservice types		
School foodservice	117	44.8
University foodservice	132	50.6
Restaurant by an owner	6	2.3
Franchise restaurant	5	1.9
Other	1	0.4
Visiting frequency of the evaluating foodservice		
1-2 times a month	55	21.2
3-5 less times a month	43	16.5
5-10 times a month	37	14.2
11-15 less times a month	18	6.9
16-20 times a month	21	8.1
> 20 more times a month	86	33.1

Table 2. Performance levels of sustainable practices of foodservice that consumers perceived

Divisions	Variables	Mean ± SD[1)]
Sustainable food ingredients		
	Use certified organic vegetables	2.81 ± 1.06
	Use environment-friendly fed meats and dairy products	2.80 ± 1.00
	Use locally produced food products	2.81 ± 0.97
	Use on-site food produce	1.99 ± 1.00
Eco-friendly menu		
	Less meat and more vegetables, fruits, and vegetable proteins	2.75 ± 0.87
	Limit to 1-2 per week of serving fried foods	2.73 ± 1.00
	Save energy and food ingredients in preparations	3.11 ± 0.89
Recycling food service items		
	No disposable food service items (e.g. dishes and cups)	4.00 ± 1.10
	Disposable food service items for reusable or recycled materials	3.44 ± 1.07
	Disposable food service items for bio-based materials	3.12 ± 0.99
Water efficiency		
	Water efficiency system for kitchen equipment	3.19 ± 0.97
	Dual flush handle toilet	3.02 ± 1.17
Energy efficiency		
	Energy-efficient equipment (dishwasher, heating/cooling machines)	3.13 ± 0.88
	Energy-efficient systems for walk-in refrigerator (e.g. strip curtain, temperature & moisture control system)	3.05 ± 3.03
Lighting		
	Use LED lamps	2.92 ± 1.00
	Occupancy sensors-restrooms, office and storage closets	2.58 ± 1.07
Waste reduction		
	Reduction of food waste	3.08 ± 1.09
	Waste reduction of disposable products	3.27 ± 1.07
	Separate waste and recycle	3.47 ± 1.00
	Separate environmentally hazardous waste (batteries, paints, chemicals, electronics, and fluorescent lamps)	3.41 ± 0.92
	Reuse office materials and waste reduction	3.17 ± 0.91
Chemical material reduction		
	No Chlorodifluoromethane-based refrigerants	3.03 ± 0.98
	Use environment-friendly dishwasher detergents	3.15 ± 1.05
Public relations on green activity		
	Consumer awareness of environment-friendly policy	2.58 ± 1.17
	Drive consumer participation and practice of environment-friendly activities	2.78 ± 1.00

[1)] Scale: 1 = strongly disagree, 2 = disagree, 3 = neither 4 = agree, 5 = strongly agree

(55.5%) or were teenagers (42.6%). Approximately 72% of the respondents were women. Nearly all respondents (95%) reported eating foods provided by school and university foodservice organizations. Approximately one-third (33%) of respondents purchased meals more than 20 times per month from their institutional foodservice.

Sustainable practices by foodservice organizations

From reviewing the literature [9,12,20,23], we classified sustainable practices into 9 dimensions: sustainable food ingredients, eco-friendly menu, recycling of food service items, water efficiency, energy efficiency, lighting, waste reduction, chemical reduction, and public relations on green activities in foodservice operations. Consumers were not very familiar with the green activities implemented in the foodservice sector. In Table 2, the item with the lowest awareness was “use on-site food produce (1.99), followed by “occupancy sensors-restrooms, office and storage” (2.58), “consumer awareness of environment-friendly policy” (2.58) and "limit of serving fried foods one to two times a week” (2.73).

The foodservice industry practice with the highest awareness from customers was “no disposal food service items such as dishes and cups”(4.00), followed by “separate waste and recycle”(3.47), “disposable foodservice items for reusable or recycled materials” (3.44), and “separate environmental hazardous waste” (3.41). These results showed that consumers perceived fairly low levels of sustainable practices in the foodservice sector and had little interest in the issue.

Dimensions of the sustainable practices of foodservice organizations by factor analysis

Table 3 shows the results of factor analysis of sustainable practices with a total of 25 green activities. The sustainable practices which the customers perceived as being implemented

Table 3. Dimensions and their means for sustainable practices in foodservice organizations classified by factor analysis

Items	Factor loading value	Eigen-value	Variance (%)[1]	Reliability	Mean ± SD[2]
Green food materials procurement		2.028	13.099	0.892	2.46 ± 0.95
Use certified organic vegetables	0.865				
Use environment-friendly fed meats and dairy products	0.862				
Use locally produced food products	0.805				
Use on-site food produce	0.707				
Sustainable food preparation		1.213	6.292	0.639	2.73 ± 0.81
Less meat and more vegetables, fruits, and vegetable proteins	0.827				
Limit to 1~2 per week of serving fried foods	0.817				
Green packaging		1.036	6.191	0.762	3.74 ± 0.95
No disposable food service items (e.g. dishes and cups)	0.761				
Disposable food service items for reusable or recycled materials	0.771				
Disposable food service items for bio-based materials	0.352				
Preservation of energy		10.513	29.839	0.925	2.93 ± 0.92
Save energy and food ingredients in preparations	0.666				
Water efficiency system for kitchen equipment	0.799				
Dual flush handle toilet	0.568				
Energy-efficient equipment (dishwasher, heating/cooling machines)	0.827				
Energy-efficient systems for walk-in refrigerator (e.g. strip curtain, temperature & moisture control system)	0.881				
Use LED lamps	0.622				
Occupancy sensors-restrooms, office and storage closets	0.355				
No Chlorodifluoromethane-based refrigerants	0.851				
Use environment-friendly dishwasher detergents	0.861				
Waste management		1.835	8.585	0.857	3.28 ± 0.89
Reduction of food waste	0.791				
Waste reduction of disposable products	0.804				
Separate waste and recycle	0.552				
Reuse office materials and waste reduction	0.361				
Public relations on green activity		1.505	8.514	0.863	2.70 ± 1.07
Consumer awareness of environment-friendly policy	0.864				
Drive consumer participation and practice of environment-friendly activities	0.883				

[1] Total variance: 72.520 %
[2] Scale: 1 = strongly disagree, 2 = disagree, 3 = neither 4 = agree, 5 = strongly agree

were classified into 6 dimensions: green food material procurement, sustainable food preparation, green packaging, preservation of energy, waste management, and public relations on green activity.

Even though the criteria for "disposable food service items for bio-based materials" and "occupancy sensors-restrooms, office and storage closets" under the preservation of energy dimension and "reuse office materials and waste reduction" under the waste management dimension showed lower factor loading values, they were not removed because previous studies [7,8,18] provided evidence for those criteria.

Consumers assigned lower scores to the dimensions of "green food material procurement" (2.46 out of 5 points) and "public relations on green activities" (2.70). In contrast, they assigned higher scores to "green packaging" (3.74) and "waste management" (3.28).

Benefits and foodservice image of the sustainable practices of foodservice organizations

Table 4 shows the results of customers' evaluations on the contributions of foodservice organizations. From the factor analysis, 7 items were grouped into two dimensions named social contributions of foodservice industry and image of foodservice industry. Purchase intention was rated with one question item. Customers rated the sustainable practices of foodservice organizations at somewhat lower than the average level of their social contribution (2.99 ± 0.87) as well as image (2.91 ± 1.06).

Customers believed that their foodservice providers implemented an average level of sustainable practice, were concerned about the average level of customer health and viewed their foodservice providers as contributing less to the environment and community development. They also rated their foodservice provider's image, confidence and work performance as average. Lastly, they reported average levels of purchase intention for the meals provided by the foodservice organizations (3.09 points).

The effects of sustainable practices by foodservice organizations on purchase intention, foodservice image, and contribution

Table 4. Consumers' perceptions of contributions and image of foodservice organizations

Items	Factor loading value	Eigen-value	Variance (%)[1)]	Reliability	Mean ± SD[2)]
Social contributions of foodservice		1.762	35.441	0.897	2.99 ± 0.87
Implement sustainable practices in various perspectives	0.825				3.01 ± 0.91
Contributes the customer's health	0.461				3.08 ± 1.04
Contribute to the protection of environment	0.849				2.98 ± 1.01
Contribute to community development	0.859				2.84 ± 1.07
Foodservice image		3.266	36.390	0.937	2.91 ± 1.06
Give good image to me	0.938				2.90 ± 1.13
Give a confidential to me	0.932				2.82 ± 1.16
Operated in excellence	0.656				3.00 ± 1.07

[1)] Total variance: 71.830 %
[2)] Scale: 1 = strongly disagree, 2 = disagree, 3 = neither 4 = agree, 5 = strongly agree

Table 5. The effects of sustainable practices by foodservice organizations on purchase intention, foodservice image, and perception of contribution

Model	Non-standardized coefficient		standardized coefficient	t	*P*-value
	B	SE	β		
Foodservice's social contribution					
Constant	2.257	0.183		12.304***	0.000
Public relations of green activity	0.099	0.046	0.154	2.175*	0.031
Waste management	0.129	0.058	0.204	2.207*	0.028
Sustainable food preparation	0.16	0.06	0.183	2.663**	0.008
	R^2: 0.157, F-value:7.535,	*P*-value < 0.001			
Foodservice Image					
Constant	-0.386	0.179		-2.154*	0.032
Green packaging	0.109	0.042	0.107	2.583**	0.010
Social contribution of the foodservice organization	0.934	0.049	0.761	18.974***	0.000
	R^2: 0.672, F-value:70.844,	*P*-value < 0.001			
Purchase intention					
Constant	0.881	0.233		3.785***	0.000
Image of foodservice	0.818	0.083	0.775	9.907***	0.000
	R^2: 0.538, F-value:32.742,	*P*-value < 0.001			

* $P<0.05$, ** $P<0.01$, *** $P<0.001$

To identify the relationship between sustainable practices by foodservice organizations and the contributions, image and purchase intentions for the foodservice provider, multiple regressions were analyzed using the stepwise method (Table 5).

First, social contributions to the environment, customer health or to the community by the foodservice organization received a fairly low score. Among the 6 dimensions of sustainable practices, the factors influencing the social contributions of the foodservice organization were public relations on green activity ($\beta = 0.154$), waste management ($\beta = 0.204$) and sustainable food preparation ($\beta = 0.183$). Namely, green food material procurement, green packaging, and preservation of energy had no influence on the perception of social contributions by foodservice organizations. Secondly, customers of foodservice operations rated the image of the organizations at 2.91 out of 5 points, which is similar to previous studies. Only two factors, green packaging ($\beta = 0.107$) and the foodservice organization's social responsibility ($\beta = 0.761$), had strong relationships with the image of the organization. Lastly, our study showed that the purchase intention of the customers was affected by the image of the foodservice organization ($\beta = 0.775$).

DISCUSSION

Since the announcement of the Kyoto Protocol in 2005, sustainable development has been a keyword worldwide and has served as an important principle for managing organizations abroad. In Korea, limited studies [19-20,22-23] have been conducted to study sustainable practices in the foodservice sector. Moreover, few studies have been conducted to set the criteria for evaluating sustainable practices in the foodservice sector, despite the large market in Korea. Thus, this study attempts to propose the criteria for sustainable practices by foodservice organizations, to assess the perception of customers regarding sustainable practices by the foodservice organization, and to identify the relationships among food service image, social contribution and sustainable practices.

Following literature reviews [9,12], sustainable practices of the foodservice sector were categorized into 25 standards with 9 dimensions: sustainable food ingredients, sustainable preparation of food, recycling food service items, water efficiency, energy efficiency, lighting, waste reduction, chemical reduction, and public relations on green activities in foodservice operations. One study of 'going green' practices implemented in the

hospital food services sector identified these practices as focusing on buildings and equipment, waste management, food and non-food suppliers, procurement, and energy-saving practices [21]. The GRA, which is a non-profit organization in the United State that provides certification for restaurants to become more environmentally responsible, suggested standards categorized into 7 dimensions: energy efficiency, water efficiency, waste, recycled and bio-based disposables, sustainable furnishings & building materials, sustainable food, and chemical and pollution reduction [9]. In Taiwan, green management standards for food service were developed with the application of green chain management. Three dimensions were included in the standards: (1) green foods, (2) green environment and green equipment, and (3) green management and social responsibility. Nine sub-dimensions and a total of 76 standards were set for existing restaurants and 81 criteria for new facilities [12]. "Mitheyou" is a policy implemented domestically. It is somewhat different from the sustainable certification criteria abroad but is partially linked with sustainable management in the foodservice sector. It was developed by the Chungcheongnam-do government and is one of the local food policies aimed at accomplishing the Local Circulating Agriculture and Food System [24]. The criteria consist of taste (25 points), purchasing volume and price of local produce (40 points), employee service (15 points), facility sanitation and environment (20 points), and miscellanea (5 points).

Through factor analysis, our study identified sustainable practices in 6 dimensions: (1) green food material procurement, (2) sustainable preparation of food, (3) green packaging, (4) preservation of energy, (5) waste management, and (6) public relations on green activity. Consumers were not very familiar with the sustainable practices deployed by foodservice operations, especially in the dimension of "green food material procurement" and "public relations on green activity". "Green packaging" and "waste management" received higher scores but still needed improvement. These results were attributed to the low promotion of sustainable practices by foodservice facilities. Therefore, it is necessary to set the standards for sustainable practices in the foodservice sector and to develop action plans for participation by the entire industry as well as consumer participation.

Our study determined that the dimension with the lowest score was the public relations on green activity. However, this dimension was the determining factor affecting the perception of the social contribution by the foodservice organization. Thus, it is important for managers in charge of marketing for commercial and noncommercial environment-friendly foodservice providers to develop active plans for potential customers to engender a positive attitude toward sustainable foodservice organizations. Consumer attitudes regarding commitment to sustainable practices as well as their awareness of sustainable practices are important factors for successful implementation. Thus, foodservice organizations should educate employees and promote their ongoing sustainability efforts to their customers. Options to practice sustainable management internally are as follows: (1) purchase of local foods or sustainable foods (2) Energy audits through tracking and assessing the use of energy and water (3) Installing light sensors in storage areas and other areas with limited activities (4) use of smart kitchens and energy conservation by replacing outdated equipment, and (5) use of green packaging [11]. On the other hand, options to activate sustainable practices externally include providing information on sustainable practices to customers and encouraging them to participate. For example, through an education bulletin in the dining area, managers can provide hands-on education for customers to obtain useful information on and to take part in sustainable activities.

Contrary to our expectations, this study did not indicate that the purchase intention of customers is affected by sustainable practices by the foodservice provider. Only the foodservice image was found to have an effect on purchase intention. This result was not consistent with previous studies [13,19] reporting that consumers' perceptions of sustainable practices by foodservice organizations was a powerful driver affecting their intentions to revisit a restaurant, especially for environmentally conscious consumers. In the research predicting consumer intention regarding eco-friendly restaurants with an extended theory of reasonable behaviors, attitudes, subjective norms, environmental consciousness and past behavior were highlighted as precedent factors affecting the consumer's purchase intentions [13]. The study revealed that the extended reasonable behavior model would be useful for estimating consumers' intentions given a choice of environmentally friendly restaurants. Another study suggested that sustainable behaviors related to recycling, environmental preservation, and environmental purchasing had a positive effect on consumer purchase intentions [25,26].

In conclusion, due to the resources used in the foodservice sector, the activities of foodservice organizations have a strong effect on environmental protection efforts. Therefore, foodservice managers in commercial as well as noncommercial foodservices organizations should emphasize sustainable practices, from purchasing to meals service. In addition, active plans to save energy and the global environment by foodservice organizations should be developed to enable consumers to participate and experience these activities including green purchasing activity, waste reduction methods, etc. This study found that consumers had little awareness of sustainable practices deployed by foodservice operations. The dimensions of public relations on green activity, waste management and sustainable preparation of food influenced the perception of social contributions by the organization. Green packaging and social contributions by foodservice organizations had strong relationships with the image of the organization. Thus, foodservice facilities should actively promote programs related to social responsibilities and develop action plans for the entire organization as well as for consumer participation. Now is the right time for multipronged efforts providing proper information on suitable sustainable practices by foodservice organizations.

REFERENCES

1. National Restaurant Association (US). National Restaurant Association [Internet]. Washington, D.C.: National Restaurant Association; 2015 [cited 2015 April 28]. Available from: http://www.restaurant.org/home.

2. Ministry of Food and Drug Safety (KR). Food and drug statistical yearbook [Internet]. Cheongju: Ministry of Food and Drug Safety; 2014 [cited 2015 April 30]. Available from: http://www.mfds.go.kr/stat/index.jsp.
3. National Restaurant Association (US). Restaurant industry forecast [Internet]. Washington, D.C.: National Restaurant Association; 2014 [cited 2014 March 3]. Available from: http://www.restaurant.org/News-Research/Research/Forecast-2014.
4. Food Dine Economic (KR). Sales on institutional foodservice markets: 2013.3.15 reports [Internet]. Seoul: Food Dine Economic; 2013 [cited 2015 August 27]. Available from: http://www.foodbank.co.kr/news/articleView.html?idxno=35373
5. Food News (KR). Market scales of food industry and commercial foodservice industry: 2012.6.13 reports [Internet]. Seoul: Food News; 2012 [cited 2015 August 27]. Available from: http://www.foodnews.co.kr/news/articleView.html?idxno=40352.
6. World Commission on Environment and Development (US). Our Common Future. New York (NY): Oxford University Press; 1987.
7. U.S. Environmental Protection Agency. U.S. Environmental Protection Agency [Internet]. Washingtion, D.C.: U.S. Environmental Protection Agency; 2014 [cited 2014 March 5]. Available from: http://www.epa.gov.
8. Gregoire MB. Foodservice Organizations: a Managerial and Systems Approach. 7th ed. Upper Saddle River (NJ): Pearson Education Inc.; 2010. p.22-4.
9. Green Restaurant Association (US). Certification standards [Internet]. Boston (MA): Green Restaurant Association; 2014 [cited 2015 March 15]. Available from; http://www.dinegreen.com/restaurants/default.asp.
10. Kwak TK, Rye ES, Lee HS, Hong WS, Chang HJ, Choi JH, Lee NY. Foodservice Management. 4th ed. Seoul: Shinkwang Pub.; 2014. p24-7.
11. Peregrin T. Sustainability in foodservice operations: an update. J Acad Nutr Diet 2012;112:S12-5.
12. Wang YF, Chen SP, Lee YC, Tsai CT. Developing green management standards for restaurants: an application of green supply chain management. Int J Hosp Manag 2013;34:263-73.
13. Chen CJ, Gregoire MB, Arendt S, Shelley MC. College and university dining services administrators' intention to adopt sustainable practices: results from US institutions. Int J Sustain High Educ 2011;12:145-62.
14. Dodds R, Kelman I, Thiesen N, McDougall A, Garcia J, Bessada T. Industry perspectives on carbon-offset programs in Canada and the United States. Sustain Sci Pract Policy 2012;8:31-41.
15. van Dooren C, Bosschaert T. Developing and disseminating a foodprint tool to raise awareness about healthy and environmentally conscious food choices. Sustain Sci Pract Policy 2013;9:70-82.
16. Feenstra G, Allen P, Hardesty S, Ohmart J, Perez J. Using a supply chain analysis to assess the sustainability of farm-to-institution programs. J Agric Food Syst Community Dev 2011;1:69-85.
17. Lehtinen U. Sustainability and local food procurement: a case study of finnish public catering. Br Food J 2012;114:1053-71.
18. Reisch L, Eberle U, Lorek S. Sustainable food consumption: an overview of contemporary issues and policies. Sustain Sci Pract Policy 2013;9:7-25.
19. Kim YJ, Kim DJ. Consumers' intention to select eco-friendly restaurants by adopting extended theory of reasoned action. Foodserv Ind J 2012;8:45-62.
20. Yoo JY. A study on comparing and analyzing for green restaurant certification criteria. Int J Tour Hosp Res 2014;28:85-96.
21. Wilson ED, Garcia AC. 'Going Green' in food services: can health care adopt environmentally friendly practices? Can J Diet Pract Res 2011;72:43-7.
22. Chungnam National Research Institute (KR). Mitheyou standards [Internet]. Gongju; Chungnam National Research Institute; 2015 [cited 2015 March 1]. Available from: http://www.meplusyou.or.kr/.
23. Jeong JH, Kim EJ, Kim MH, Choi MK. Perception of eco-friendly agricultural products and food service satisfaction of elementary and middle school students according to eco-friendly food service day in Chungnam. J Korean Soc Food Sci Nutr 2013;42:114-9.
24. Jung MH, Chang MJ, Kim SH. Perception of environment-friendly foods and satisfaction with school meals among students, their parents, and nutrition teachers at elementary schools in the Jindo area, Jeonnam. J Nutr Health 2013;46:369-81.
25. Dipietro RB, Cao Y, Partlow C. Green practices in upscale foodservice operations: customer perceptions and purchase intentions. Int J Contemp Hosp Manag 2013;25:779-96.
26. Hu HH, Parsa HG, Self J. The dynamics of green restaurant patronage. Cornell Hosp Q 2010;51:344-62.