

Consumers' attitude towards date marking system of packaged foods

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ABSTRACT

Food labels play an important role in well-being of consumers. As a part of it, date marking is a valid guide to shelf life of a food. The present study was done in 2010, in Smart Food Center, Wollongong; New South Wales, Australia to determine if the residents are familiar with date marking of food products. Data was accumulated by either interview guide or questionnaire method. Basic unselected samples of 200 shoppers were interviewed. Awareness of consumers about the method of date marking of food products, the frequency of purchasing spoiled or stale products, particularity about dates marked on food products before buying them, observation of the date marked on perishable and semi perishable food items, and satisfaction of consumers with the freshness and date marking of products were mainly studied. Out of 200 consumers who were interviewed, 112 (56%) supported date marking services. 128 (64%) consumers were well informed of the date making system. Most of the people in this group were between 35 to 44 years of age. 75% of respondents were women. The range of family income was between AUS\$30000-750000 per months. There was no association between degree of knowledge of date marking and sex and educational level of consumers who purchased spoiled food products. Among consumers who purchased spoiled food items, a significant number were informed of date marking systems and used it when making purchases. Date marking has been observed by both male and female and was not related to their academic degrees.

Key words: Date marking; Packaged food; Attitude; Knowledge; Consumer

INTRODUCTION

The food label is an important tool for improving the public's understanding of the health benefits of following a nutritious diet [1, 2, 3]. Date marking is a consumer's guide to the shelf life of a food. It is based on either quality attributes of the food or health and safety issues. Date mark defines the length of time a food is fine before it starts to deteriorate or becomes less nutritious or unsafe. The date is usually displayed as 'best before' or 'use by'. A 'best before' date is the last date on which you can expect a food to retain all of its quality attributes, while the 'use by date' is the last day on which the food may be eaten safely provided it has been stored according to stated storage conditions and the package in unopened, in both cases [4]. Perhaps more a realistic view is that date marking should be considered beneficial if only it improves the product freshness obtained by the consumers. On

the other hand, retailers who continue to sell stale and spoiled food products would not stay in business long because generally consumers are a perceptive group who would switch, when possible, from offending stores [5]. The insistence on date marking notifies retailers and manufacturers that the consumer must be served with more product information and quality-assured foods [6].

It has been shown that only a few consumers pay attention to the date on food products [7, 8], whereas they may be more concerned with the location at which they buy their food products [9, 10] and also other considerations such as convenience and differences in price (price advantages) may be more important and noticeable than concern over use of the date marking system [11].

Also, consumers have different ideas about the meaning of date marking, and they interpret it in different ways [12, 13]. In 2005, Cowburn and

Stockly performed a systematic review to explore published and unpublished research into consumer understanding and use of nutrition labeling. 103 papers mainly from North America or northern Europe were identified. The result showed that the use of nutrition labels for food purchase was much lower than general use of nutrition labels. Also, it seemed that consumers who looked at the label understood some parts but the rest was confusing to them. Authors suggested that the addition of interpretational aids might help them to assess the nutrient contribution of specific foods to the overall diet [14].

Some consumers believed that the labels do not reveal the real components and they are written in commercial language [15]. Kim and Kim investigated the perception of Korean consumers of the new system of the front of pack labeling. The knowledge of nutrition labeling, the knowledge of 'front of pack labeling', and the opinion about the labeling system was studied among 1019 consumers between 20 and 49 years of age. 44.3% thought that this type of labeling was necessary and 16.8% of the consumers always checked the nutrition labeling, while 32.7% of the consumers seldom did. Color coding of the data and limiting it to four to five nutrients was suggested by the studied group [16].

To examine the consumers' awareness for food labeling in United Arab Emirates (UAE), along with identification of the socioeconomic characteristics and attitudes which make consumers aware of the subject, a survey was performed on randomly selected 500 respondents from all over the country. The findings showed that %89.6 of them read the information on the food label with the most important ones being the expiration date, list of ingredients and country of origin. Basarir concluded that the probability of reading food labels more frequently increases in older, more educated, and those who have more children under age of 18 [17].

As can be seen different trends were observed in the above mentioned studies. The use of date marking needs to be considered and tested in order to establish whether the system is advantageous for consumers and Australian society as a whole [18]. Obviously, little survey and research has been done concerning date marking of food items. No consumer research has

been undertaken in the states of New South Wales (NSW) about date marking of food products. This study was made to determine if the residents of Wollongong, Australia, are familiar with the date marking method of food products.

MATERIALS AND METHODS

This study was conducted in 2010, in Woolworths at Smart Food Center, Wollongong. The city is located South of Sydney, Australia's largest city in the state of New South Wales and has both modern residential and commercial areas and is home of the University of Wollongong. Shoppers were interviewed in order to cover a large section of consumers in Wollongong; two Woolworths stores were selected and in total 200 consumers were interviewed which was a basic unselected sample of shoppers as interviews were held at different times and shoppers had an equal chance to be included in the research. Data for this survey have been accumulated by one of two systems: Interview guide or questionnaire method. These major topics were considered: awareness of consumers about the method of date marking of food products, the frequency of purchasing spoiled or stale products, particularity about dates marked on food products before buying them, observation of the date marked on perishable and semi perishable food items, and consumer satisfaction with freshness in relation to date marking of the products.

To obtain the data, consumers were asked:

- 1.How frequently have you purchased food items that were stale and/or became spoiled?
- 2.Food companies must put a date on all food products. Do you regularly check the date of food labels?
- 3.Could you name on which of the perishable or semi-perishable products have you noticed them?
- 4.What does the term "best-before- date" on a food package mean to you?
- 5.What does the term "use-by date" on a food package mean to you?

To analyze the findings, research questions used for the purpose of this study are classified as follows: Research questions concerning 1) degree of knowledge of consumers about date marking of food products; 2) socio-economic importance of

date marking of food items, and 3) demographic characteristics of consumers. The percentage method of analysis was applied in this research. Percentages of proportions of a universe from the evidence supplied by a sample are a common procedure in business research. For the purpose of business research, however, most percentages are computed from very large samples. It is common for the percentages to be greater than 25 or 30 and usually less than 75 or 80.

RESULTS

With the hope of shedding some light on the existing amount of knowledge regarding consumer behavior, in general, and date marking, in particular, the findings are presented here. On the basis of responses provided interviewees were divided into three groups: 1) Those that had an exact knowledge of the nature and purpose of date marking; fully informed 2) Those who had a general idea or a limited degree of awareness; generally or somewhat informed, and 3) Those that were totally unaware. The frequency of

purchasing a perishable item was categorized as never, hardly ever (1-2 times during a year), Often (once every 6 months), and very often (at least once per month).

According to our data, 64% of our respondents were “fully informed”, 26% were “generally or somewhat informed”, and only 10% were “totally unaware” of the idea of date marking. Also, only 24 people (12%) had “never” come across or purchased spoiled food products and the remaining 88% had at least once purchased such products; 38% had done so once or twice, 32% once every six months and 18% at least once per month.

The relationship between consumers who support date marking and frequency of purchasing spoiled foods was evaluated (Table 1). In total, 112 of respondents supported date marking but most of them (64) were in the group who often bought perishable items. Interestingly, only 2% of people who never bought spoiled item supported date marking.

Table 1. Relationship between consumers who support date marking & confidence in freshness of food products because of the date marking system

Confidence of consumers in freshness	View on of date marking		
	Supporting %	Not Supporting %	Total
Very often: (at least once per mth)	31	15	24
Often:(once every 6 mths)	58	51	55
Hardly ever: (1-2 times during a year)	9	18	13
Never	2	16	8
Total	100	100	100
N	(112)	(88)	(200)
% of Grand Total	56%	44%	100%

200 consumers were interviewed at two Woolworth centers in Wollongong, NSW. Data was obtained using interview guide and questionnaire and analysis was done by using percentages. Interestingly, only 2% of consumers who never purchased perishable items supported date marking. While the highest proportion of date marking supporters bought spoiled food once every six month.

Table 2 summarizes the relationship between priority factors in buying food items and purchasing of spoiled foods. As can be seen, in the group who never purchased spoiled food the priority was given to product variety followed by date marking. Convenience and price came later

on the list. While the consumers who very often bought spoiled foods paid more attention to price and convenience. The group who paid highest attention to date marking was the customers who only bought the spoiled products once or twice per year.

Table 2. Relationship between factors functioning as priority factors in choice of store & purchasing of spoiled foods

Frequency of purchasing spoiled food	Factors in food purchasing				
	Date making of food items %	Convenience %	Price %	Product variety %	Total %
Very often: (at least once per mth)	14	26	27	13	17
Often: (once every 6 mths)	31	42	31	29	32
Hardly ever: (1-2 times during a year)	42	21	39	40	38
Never:	13	11	3	18	13
Total	100	100	100	100	100
N	(48)	(19)	(41)	(92)	(200)
% of Grand Total	24%	10%	20%	46%	100%

200 consumers were interviewed at two Woolworth centers in Wollongong, NSW. Data was obtained using interview guide and questionnaire and analysis was done by using percentages. As can be seen, the highest portion of consumers who hardly ever bought perishable items made date marking their highest preference while shopping. On the other hand, product variety was the main factor in the group who never purchased spoiled food.

The relationship between support of date marking system and confidence in freshness of food items was also studied. It was observed that 48 (24%) of the respondents have complete confidence in freshness of perishable and semi-perishable food items by use of date marking. In other words, they have accepted this measure, as a guarantee for freshness of food products. 55% of consumers have stated fairly fresh food items were available because of the date marking system. 13% of the sample had no faith about freshness of products because of date marking, and finally 8% mentioned no opinion. In another section, consumers were also asked “in your opinion does date making result in higher prices for food items?” 31% of consumers who supported date

marking expressed absolute faith. 58% believed it fairly, 9% had no faith and 2% mentioned no opinion. On the other hand, in 88 (44%) of the total sample who did not support date marking. 15% described absolute faith, 51% fairly, 18% had no faith, and 16% were undecided.

Table 3 summarizes the relationship between support of date marking services and the age of the consumers. Out of 56% who supported date marking services, 26 were between the age of 15 and 24, 48 in the group of 25 to 34 years of age, 52 between 35 and 44 years of age, 40 with the age of 45 to 54 years of age, 20 with the age of 55 to 64 years of age and only 14 were 65 years of age or over. No specific pattern was observed in supporting date marking with increase of age.

Table 3. Relationship between consumers who support date marking system & age of consumers

Age of consumers	Supporting date marking		
	Supporting %	Not Supporting %	Total %
15-24 yrs of age	13	7	10.5
25-34 yrs of age	24	32	27.5
35-44 yrs of age	26	25	25.5
45-54 yrs of age	20	22	21
55-64 yrs of age	10	10	10
65 or over	7	4	5.5
Total	100	100	100
N	(112)	(88)	(200)
% of Grand Total	56%	44%	100%

200 consumers were interviewed at two Woolworth centers in Wollongong, NSW. Data was obtained using interview guide and questionnaire and analysis was done by using percentages. Most interviewed group was between 25 and 44 years of age.

Another consideration in this survey was the relationship between family income and degree of

knowledge of date marking. Table 4 summarizes the results of this relationship. The result indicated

that 38 of the consumers had an income below \$30,000 (lowest), while 9.5% of the consumers had an income of \$150,000 and over. Overall, a higher percentage of consumers with low income were unaware of date marking and a high percentage of middle-and high-income consumers were well informed or somewhat informed of the date marking system. The next objective of this study was to find out the relationship between degree of knowledge of date marking and level of education of consumers. As can be seen in Table 5, of consumers who were in the group of a low level of education, i.e. High school incomplete or less, 30% were unaware while a similar percentage were well-informed. The highest numbers of consumers of 'somewhat informed' group were also in the

education level category. Whereas, the highest level of unawareness belonged to the consumers who were in the group of middle level of education, i.e., high school completed. The next step was to determine the relationship between the degree of knowledge of date marking and sex of consumers. From Table 6, it is clear that out of the total sample in this study, 24.5% were male consumers and 75.5% consisted of female consumers. 99 of the female consumers were well informed of the date making system compared to only 29 males. Similar pattern was seen in the 'somewhat informed' category. Also, the number of unaware female was higher than unaware males. Hence, no relationship was established between sex and the knowledge if date marking.

Table 4. Relationship between degree of knowledge of date marking & level of income of consumers

Level of income of consumers	Degree of knowledge of date marking			
	Well Informed %	Somewhat informed %	Unaware %	Total %
Under \$30,000	18	17	30	19
\$ 30,000-\$49,999	15	33	35	21.5
50,000-\$99,999	27	27	25	27
\$100,000-\$149,999	27	17	10	23
\$150,000 and over	13	6	0	9.5
Total	100	100	100	100
N	(128)	(88)	(20)	(200)
% of Grand Total	64%	26%	10%	100%

200 consumers were interviewed at two Woolworth centers in Wollongong, NSW. Data was obtained using interview guide and questionnaire and analysis was done by using percentages. The lowest income group was the most unaware, while the highest informed group were placed among the middle income groups.

Table 5. Relationship between degree of knowledge of date marking & level of education of consumers

Level of education of consumers	Degree of knowledge of date marking			
	Well Informed %	Somewhat informed %	Unaware %	Total %
Under High school diploma	30	42	30	33.5
High School completed	28	29	40	29.5
University incomplete	20	12	10	16.5
University completed	15	11	20	14.5
Technical School	7	6	0	6
Total	100	100	100	100
N	(128)	(52)	(20)	(200)
% of Grand Total	64%	26%	10%	100%

200 consumers were interviewed at two Woolworth centers in Wollongong, NSW. Data was obtained using interview guide and questionnaire and analysis was done by using percentages. Interestingly, the highest informed group had the lowest level of education although the same percentage were unaware of the system.

Table 6. Relationship between degree of knowledge of date marking & sex of consumers

Sex of consumers	Degree of knowledge of date marking			
	Well Informed %	Somewhat informed %	Unaware %	Total %
Female consumers	77	77	60	75.5
Male consumers	23	23	40	24.5
Total	100	100	100	100
N	(128)	(52)	(20)	(200)
% of Grand Total	64%	26%	10%	100%

200 consumers were interviewed at two Woolworth centers in Wollongong, NSW. Data was obtained using interview guide and questionnaire and analysis was done by using percentages. Despite the higher number of female participants in the study, no relationship could be found between the level of knowledge and gender in this study.

DISCUSSION

The aim of this study was to investigate the awareness of date marking in a sample of consumers in Wollongong, Australia. The scope of the study was limited to only those packaged food items, which carry date marked; mainly perishable and semi-perishable ones. Only Woolworths' stores were taken for the research purposes despite the fact that there were other grocery and food stores in the city, Woolworths is a typical food store in Wollongong and offers date marked food products. Wollongong consumers could be a representative of the general population of NSW.

As presented, our data showed that 64% of our respondents were "fully informed", 26% were generally or somewhat informed, and only 10% were totally unaware of the idea of date marking. There is no other report available in this field from this geographic region. But there are number of studies about the consumers' awareness and utilization of food labels all over the world. In Korea only 68% of consumers were aware that labeling is regulated by law and they checked the label when purchasing [19]. A study among 1050 Norwegians aged greater than 15 years, showed that the majority of consumers read food labels, although to differing degrees (often, sometimes or seldom). In a recent study Basirar and Sherif showed that %89.6 of respondents in United Arab Emirates read the food label and paid special attention to the expiry date [17]. According to the data of present study, 88% of consumers had at least once purchased spoiled products. This is indeed alarming. Based on the findings, it is concluded that among consumers who purchase spoiled

food items, a significant number are informed of date marking systems and use it when making purchases. The underlying reason might be the priority of the consumer during shopping. In another survey, 50% of the randomly selected population from Louisiana stated using the labels and reasons for non-use included lack of interest or time, and in sufficiency of prior knowledge of nutrient content [12]. Kim and Kim reported that the reason for not checking the label was either being 'bothersome' or 'not noticed' [16]. On the subject of priority factors, a great percentage of consumers who purchase spoiled food were more concerned about the price, convenience and product variety offered by the store rather than date marking. Similarly, most of consumers who often or very often bought spoiled products supported date marking had confidence in freshness of food items with the use of date marking as a measure. In present study, there was not a relationship between consumers who support date marking and their age. This finding is not supported by Kim and Kim as young Koreans showed more concern about checking the food label [16]. While, in the UAE study older people – who seem to pay more attention to their health- did more label reading [17].

Females in present study were generally more informative about date marking which is supported by other studies, as well [15]. Basirar also showed that women tend to read the food labels more than their male counterparts, which according to the author was expected as they did more food shopping [17]. There were significant differences between low, middle and higher income consumers who purchase spoiled food. Although all consumers in the highest income

group were aware of date marking, they were not the most well-informed group. The study in the UAE showed that the highest income group sample read the labels less frequently compared to lower income groups [17]. A low percentage of educated consumers were not informed of the date marking system, in our study. Also, a difference could be seen between high-middle, and low educated consumers concerning their degree of knowledge of the date marking system. Interestingly, although the rate of unawareness decreased with the increase in educational level, a similar pattern was observed for the 'well informed' and 'somewhat informed' categories. The effect of education has also been reported by other researchers, as well. Basarir reported that the rate of checking food labels increased with education in a sample of UAE consumers [17]. The reason might be that people with lower education have difficulty understanding the nutrition labels [14]. In conclusion, there seems to be a good knowledge about date marking among Wollongong consumers, however, there is definitely room for improvement as the lack of knowledge was observed at different educational and financial levels. The most important issue besides having the knowledge is applying it while shopping which seems to be affected by many factors.

Recommendations

In order to encourage consumers use the date marking system, the first recommendation could be to print the meaning of date marking on food items so that consumers will become aware of its

purpose. The second recommendation is that consumers should be educated concerning date marking in order to understand its use and to find out its advantages and effects. These actions could be handled by agencies of the state and federal governments, as well as consumer research institutes, in the following ways: 1) Educate consumers so that they will be more aware of their rights and more able to act effectively in their own interests. 2) Change the legal relationship between buyers and sellers so that greater social responsibility in the conduct of the transaction is placed on the seller. 3) Regulate commerce in such a way as to discourage or ban practices inimical to the consumers' interests.

Suggestions for further research

An empirical study under the title of "Dating from the consumer's point of view" should be carried out because it can provide psychological assurance that the food industry is not neglecting the consumer and assures that consumers have a greater means of judging good purchases. It is also suggested that research studies concerning date marking of the products can be done in other states of Australia in order to discover consumers awareness of date marking when they purchase food items (and if they are familiar with the date marking system). Finally, an extensive study needs to be done in countries who require practicing date marking in order to discover the effects of date marking of food products, to understand how dating has been done, and to establish how well consumers in these countries have accepted date marking.

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