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COMPARATIVE ANALYSIS OF FOOD LABELS DATA FROM DIFFERENT FOOD PRODUCTS

Natalija Atanasova-Pancevska[1], Aleksandra Markovska[2*], Sofija Kostandinovska[1]

[1]Department of Microbiology and Microbial Biotechnology, Institute of Biology, Faculty of Natural Sciences and Mathematics, "Ss. Cyril and Methodius" University, Arhimedova 3, 1000 Skopje, Republic of Macedonia
[2]Quality Consulting, Februarski pohod 26 1/2, 1000 Skopje, Republic of Macedonia

[*]e-mail: markovska@fc.com.mk

Abstract

A food label is the most important and direct means of communicating information to the consumer. The internationally accepted definition of a food label is any tag, brand, mark, pictorial, or other descriptive matter, written, printed, stenciled, marked, embossed, or impressed on, or attached to, a container of food or food product. Manufacturing companies were obliged to establish labels for their products. The label by the legal requirements, is a label that consists of two parts - the basic part, which is the same for all products, and - the specific one which is different for different products. The paper aims to compare the basic data and information on food labels from different industries in the Republic of Macedonia and to determine the most common deviations.

The study is based on a comparison of the basic data and information of different food products from the dairy, meat, and canning industries. An electronic questionnaire was created in which the basic data and information are listed and in the rest of the questionnaire, the information is determined on the products themselves - 10 dairy products, 10 meat products, and 10 products from the canning industry were selected. The simple process of comparison is done, based on the information we get from the label, and the analyzed data were analyzed by arithmetical mean value.

After the analysis of the basic data and information, for all products, it was determined that the labels partially comply with the legal requirements. In 70% of the products, only the expiration date is indicated, but not the production date (lot number). This indicates the possibility of potential errors in the determination of shelf life.

Accurate label information is essential for industry and consumers and is the basis for the functioning of the withdrawal system.

***Key words**: Industry, Food label, Shelf life.*

1. Introduction

Food and health safety are interrelated with each other. In today's modernized world use of packaged food items has tremendously increased. Therefore, the importance of food labeling has also increased. Nowadays food product labeling has become a popular policy tool in the food industry. Nutrition labeling is a valuable tool particularly when we talk about the provision of nutrition and health information and helps in learning how to apply nutrition information practically. The nutrition information on food labels can help consumers to choose healthier food [1].

A food label is the most important and direct means of communicating information to the consumer. The internationally accepted definition of a food label is any: tag, brand, mark, pictorial, or other descriptive matter, written, printed, stenciled, marked, embossed, or impressed on, or attached to, a container of food or food product [2].

Manufacturing companies were obliged to establish labels for their products. The label under the legal requirements, consists of two parts, the basic part which is the same for all products, and the specific one which is different for different products. Research on nutrition information on packed foods showed that the given information is often misinterpreted, confusing, and inappropriate for estimating an

individual product's contribution to the overall diet [3, 4, and 5].

Food labeling is one of the important processes in the packaging of food items which is usually overlooked by most consumers. The label is the first point of contact between the buyer and the manufacturer. Food labels contain a lot of information including calories, net quantity, expiry dates, shelf life, nutritional information, manufacturer's name, brand, price, instructions to use, and contents of food items used in the product which can help consumers to decide what to choose and what not to choose, etc. Food labels are also used to identify different food products and used to discriminate products from one to another so that consumers can decide to purchase them. In general, food labels give information to the consumers about the composition and the nature of food products to avoid confusion and protect the consumers against misuse of a particular food item, health risks, and abuse. Marketing information, including the selling price, brand name, and commercial offers, is provided as well as information on the safe storage, preparation, and handling of the food product [6].

The paper aims to compare the basic data and information of food labels from different industries and to determine the most common deviations.

2. Materials and Methods

The study is based on a comparison of the basic data and information of different products from the dairy, meat, and canning industries in the Republic of Macedonia. A questionnaire was created in which the basic data and information are listed and in the rest of the questionnaire, the information is determined on the products themselves. Also, 10 dairy products, 10 meat products, and 10 products from the canning industry were selected. The simple process of comparison is done, based on the information we get from the label.

The questionnaire was organized in tables, with twelve questions, as follows:

1. Name of the food products.
2. Contents of food items.
3. Presence of allergens and food intolerance.
4. Quantity of ingredients.
5. Net quantity.
6. Expiry dates.
7. Lot number.
8. Specific conditions for food storage.
9. Manufacturer's name.
10. Origin.
11. Instruction on how to use food.
12. Nutritional value.

The answers were defined to be simple yes or no.

3. Results and Discussion

After analyzing the basic data and information, it was determined that the labels partially comply with the legal requirements for all products. In 70% of the products in the dairy and meat industry, only the expiration date is indicated, but not the production date (lot number) (Tables 1, 2), and 60% of the products in the caning industry (Table 3).

Table 1. The results from the questionnaire from the dairy industry

Questions	Dairy industry									
	Client label 1	Client label 2	Client label 3	Client label 4	Client label 5	Client label 6	Client label 7	Client label 8	Client label 9	Client label 10
1. Name of the food products	√	√	√	√	√	√	√	√	√	√
2. Contents of food items	√		√	√	√	√	√	√	√	√
3. Presence of allergens and food intolerance	√	√	√	√	√	√	√	√	√	√
4. Quantity of ingredients	√		√	√	√	√	√	√	√	√
5. Net quantity	√	√	√	√	√	√	√	√	√	√
6. Minimum shelf life use before	√	√	√	√	√	√	√	√	√	√
7. Lot number	x	x	WLN	x	WLN	x	WLN	x	x	x
8. Specific conditions for food storage	√	√	√	√	√	√	√	√	√	√
9. Manufacturer's name	√	√	√	√	√	√	√	√	√	√
10. Origin	√	√	√	√	√	√	√	√	√	√
11. Instruction on how to use food	√	√	√	√	√	√	√	√	√	√
12. Nutritional value	√	√	√	√	√	√	√	√	√	√

Legend: √ - Yes, following legal requirement; WLN - With Lot Number; X - Without Lot Number.

Table 2. The results from the questionnaire from the meat industry

Questions	Meat industry									
	Client label 1	Client label 2	Client label 3	Client label 4	Client label 5	Client label 6	Client label 7	Client label 8	Client label 9	Client label 10
1. Name of the food products	√	√	√	√	√	√	√	√	√	√
2. Contents of food items		√	√	√	√	√	√	√	√	√
3. Presence of allergens and food intolerance	√	√	√	√	√	√	√	√	√	√
4. Quantity of ingredients	√		√	√	√	√	√	√	√	√
5. Net quantity	√	√	√	√	√	√	√	√	√	√
6. Minimum shelf life use before	√	√	√	√	√	√	√	√	√	√
7. Lot number	x	x	WLN	x	WLN	x	WLN	x	x	x
8. Specific conditions for food storage	√	√	√	√	√	√	√	√	√	√
9. Manufacturer's name		√	√	√	√	√	√	√	√	√
10. Origin	√	√	√	√	√	√	√	√	√	√
11. Instruction on how to use food	√	√	√	√	√	√	√	√	√	√
12. Nutritional value		√	√	√	√	√	√	√	√	√

Legend: √ - Yes, following legal requirement; WLN - With Lot Number; X - Without Lot Number.

Table 3. The results from the questionnaire from the canning industry

Questions	Canning industry									
	Client label 1	Client label 2	Client label 3	Client label 4	Client label 5	Client label 6	Client label 7	Client label 8	Client label 9	Client label 10
1. Name of the food products	√	√	√	√	√	√	√	√	√	√
2. Contents of food items		√	√	√	√	√	√	√	√	√
3. Presence of allergens and food intolerance	√	√	√	√	√	√	√	√	√	√
4. Quantity of ingredients	√		√	√	√	√	√	√	√	√
5. Net Quantity	√	√	√	√	√	√	√	√	√	√
6. Expiry Dates	√	√	√	√	√	√	√	√	√	√
7. Lot Number	x	x	WLN	x	WLN	x	WLN	WLN	x	x
8.Specific conditions for food storage	√	√	√	√	√	√	√	√	√	√
9. Manufacturer's name	√	√	√	√	√	√	√	√	√	√
10.Origin	√	√	√	√	√	√	√	√	√	√
11. Instruction for use		√	√	√	√	√	√	√	√	√
12. Nutritional Value		√	√	√	√	√	√	√	√	√

Legend: √ - Yes, following legal requirements; WLN - With Lot Number; X - Without Lot Number.

This indicates the possibility of potential errors in the determination of shelf life.

Accurate label information is essential for industry and consumers and is the basis for the functioning of the withdrawal system.

The deviations that have been established indicate a very frequent occurrence of incomplete declarations following legal requirements and a declaration that have incomplete important information for consumers, such as the shelf life of the product itself, which is one of the most important pieces of information that a consumer understands.

In almost every food industry in the Republic of Macedonia, there is a gap in marking the lot number. The lot number is always present when the products are exported, given the stricter requirements that apply to the markets where it is exported.

4. Conclusions

- Food is produced to meet consumer needs. The consumer has no close contact with the methods of production, the legal acts that cover those areas, or the hazards that may appear during the production itself. The only valid information about the food they consume comes from the label itself. The main focus of consumers is the expiration date, for which there are legal requirements that define the label information. Manufacturers use insufficiently precise legal legislation and specify a time limit, usable until, but in most cases, the Lot number is not specified. The lot number is the first moment from which the expiration date begins to be calculated. The set expiration date without a lot is incomplete information and is very often used as an opportunity to specify the expiration date at the time the product is packaged. Most of the time production time and packaging time of the product may take place at different times, thus leaving room for a later start of the countdown to the expiration date.
- The lack of clear and precise information about the marking of the lot number and its direct connection with the expiration date, gives the right to say that the products that are consumed have the products that are on the shelves, have already passed the expiration date. This is especially important for industries that produce high-risk products, such as dairy and meat products. Concerning other industries, that produce less risky products, the quality of the product being consumed is questioned.
- The lack of a lot number declaration reduces the likelihood of establishing an effective traceability system, making it much more difficult to withdraw non-conforming products from the market, thus putting the consumer again in the inappropriate position of having potentially unsafe products available to them.

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