

## European and national regulations for the labeling of dairy products - Bulgarian market overview

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Dairy products, and white brine cheese in particular, are among those for which consumers often prefer farmer production. Product labeling is a primary tool for collaboration between the manufacturer, the food handler, and the consumer. In the present study, we observed and presented data on compliance with rules and norms in farm cheese labeling from cow's milk in the commercial network, referring to national and European legislative requirements, through documentation and observation methods. We monitored the labeling of 22 commercial brands of farm products, all of which were white brine cow's milk cheeses. The categories in the survey included the following: 1. Mandatory labeling information, 2. Additional mandatory data for specific types of food, 3. Optional (voluntary) food labeling information. Data analysis gives us a reason to conclude that all farm cheeses included in the study contain the mandatory information from the regulatory documents. A large part of them also contains additional (voluntary) information, which primarily aims to give greater clarity to the consumer about the organic origin of the product, further information about the farm producer, and compliance with national standards for the production of white brine cheese.

**Keywords:** farm cheese, white brine cheese, labeling, legislative requirements

### INTRODUCTION

In recent years, Bulgarian farmers' markets have significantly expanded both their activities and the assortment they offer. Increasing number of consumers prefer to purchase directly from producers and selected traders instead of purchasing from large grocery chains. Farmers' markets and stores are associated with a number of benefits that make them an attractive choice for consumers. They offer fresh and natural products that are cultivated or produced by local farmers. This means that the products are seasonal, fresh and of good quality, they do not contain harmful additives and pesticides. Farmers' markets shopping supports local economic development, sustainable agriculture [1] and environmental protection [13].

Dairy products, and white brine cheese in particular, are among the products for which consumers often prefer the farmer production. Farm cheeses guarantee an organic composition and do not contain pesticides, hormones or traces of antibiotics [15]. Moreover, farm cheese can contain high amount of protein, calcium and vitamins.

"Bulgarian white brine cheese" has been recognized as a Protected Designation of Origin by the European Commission [2]. The term white brine cheese is used to define a semi-hard or soft cheese, matured and stored in a brine made from milk in addition with a starter culture (bacteria *Lactobacillus delbrueckii subsp. bulgaricus* and *Streptococcus thermophiles*, as well as a leaven of bacteria *Lactococcus lactis subsp. lactis* and *Lactobacillus casei*). It is curdled with a milk-coagulating enzyme, receiving the necessary technological processing, with a dry matter content in the final product of not less than 40 percent and a fat content in the dry matter of not less than 40 percent [16].

Labeling is the primary tool for collaboration between the producer, the food handler and the consumer. Consequently, it is an integral and important part of the marketing effort and also helps proper handling of the product. Most labeling regulations aim to provide objective and informative data to the consumer, assuming that the individual consumer is rational and capable of making informed choices [7]. Ensuring consumer access to

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complete and accurate information about the content and product composition is in the interest of both producers and consumers – in order to protect their health and interests [5, 6].

In Bulgaria, the requirements for providing information when labeling the white brine cheese are regulated in the Ordinance on the specific requirements for dairy products (from 04.11.2021), the Ordinance on the requirements for the labeling and food representation (from 13.12.2014), the Ordinance on the provision of food information to consumers (from 10.04.2021) and Regulation (EU) No. 1169/2011 of the European Parliament on the Provision of Food Information to Consumers and the Council from 25.10.2011. State control body of all industrial goods (with the exception of bottled natural mineral, spring and table waters) is carried out by the Bulgarian food safety agency (BFSA). In this regard, it exercises control over packaging, labeling, production, presentation and advertising of foods. The control of compliance with all labeling and consumer information requirements is subject to strict state control by the Commission of consumer protection. For effective government control, an active position on the part of consumers is also required. In this regard, the aim of the present study is to track the degree of compliance with all legislative requirements by farmers in the labeling of white brine cheese from cow`s milk.

## MATERIALS AND METHODS

In the present study, we tracked and presented data on compliance with rules and norms in the labeling of farm brine white cheese from cow`s milk in the commercial network, referring to the national and European legislative requirements, by using both documentation and observation methods. After that, we proceeded to analyze the data we obtained.

The study was conducted in Varna city, Bulgaria during the period May-June 2024. The study aimed to collect data on the labeling of farmer products offered by producers by using some of the following commercial approaches:

- Online trade – 7 products;
- Online offer and subsequent delivery of the product to the buyer`s home – 9 products;
- Selling the products in small farmers` markets – 6 products.

We have monitored the labeling of 22 commercial brands of farmer products, all of which are white-brined cow`s milk cheeses. All dairy products were packed with a net weight between 400g. and 1000g. From the present information on the label, we selected the categories of interest to consumers.

We tracked the availability of data in three categories, regarding product labeling, based on the Ordinance on the specific requirements for dairy products (from 04.11.2021), the Ordinance on the requirements for the labeling and food representation (from 13.12.2014), the Ordinance on the provision of information to consumers about food (from 10.04.2021) and Regulation (EU) No. 1169/2011 of the European Parliament and the Council from 25 October 2011 on the provision of food information to consumers. The categories include the following:

- Mandatory labeling information including the name of the food, list of ingredients; ingredients causing allergies or intolerance; quantity of certain ingredients; net weight; expiry date; special storage conditions and/or conditions of use; the name or trade name and address of the business entity in the food industry; country or place of origin; terms of use; when in the absence of such terms, it would be difficult to use the food appropriately; nutrition contents; a batch number. The information provided has to be written in Bulgarian.
- Additional mandatory data for specific types of food: if labeling white brine cheese, it is also required to include in the label information the percentage content of dry matter and fat content in dry matter.
- Optional (voluntary) food labeling information. We analyzed the food labels and scored the data according to the selected categories of information. We have checked the presence or absence of information from different categories and the extent to which the specific requirements of national and European regulatory documents have been met.

## RESULTS AND DISCUSSION

Food labeling is the first information tool that customers discover when shopping and it is informative regarding the ingredients, nutrition content, and presence of allergens in the selected product. However, food labeling is also a marketing tool and can influence the perception of food quality, and consumers` dietary choices. For this reason, there is increasing food labeling research, regulatory labeling control, and evaluation of the effects on consumers, food product operators, and the whole market [14]. This is supported by a wide range of manuscripts published in recent years whose results reveal that mandatory and voluntary information on food packaging influence food purchase and food consumption and in general, consumer`s behavior towards dietary nutrition [4, 8, 11].

Upon the review of the available scientific publications, we found a study [6] whose aim corresponded to that of the present report. The majority of the published studies investigate the influence of information included in product labels on the purchase [3, 9], food consumption [10], the consumer's dietary nutrition [12]. According to Georgescu C et al., 2014, the data on milk labeling and milk product labeling need improvements in the direction of clearer and more complete information, as well as mentioning all the mandatory information on the product label.

For obtaining the study purposes, we purchased 22 commercial brands of farm white brine cheese for a one-month period. All products were purchased through online trading (16-products); through a courier delivery company (7 products) or direct home delivery (9 products) and from small

shops and markets (6 products). The results of tracking the presence of mandatory and voluntary data on the label of white brine cheeses are represented in Table 1.

According to national and European regulatory documents, categories are defined as:

- \*-mandatory for the labeling of packaged food product;
- \*\* -mandatory for the labeling of white brine cheese;
- \*\*\*-optional (voluntary) when labeling food products.

The results of our research show that Bulgarian producers of farm cheeses have strictly complied with all state and European requirements for labeling their products. The labels included in the study contain the full set of mandatory data presented in an appropriate way to inform consumers.

**Table 1.** Tracking the presence of mandatory and voluntary data in the labeling of packaged dairy products for 22 analyzed samples of farm white brine cheese.

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	√	√	√	√	√	√	√	√	–	–	√	√	√	√	√	√
2	√	√	√	√	√	√	√	√	√	–	√	√	√	√	√	√
3	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	–
4	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	–
5	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	√
6	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	–
7	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	–
8	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	√
9	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	√
10	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	–
11	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	–
12	√	√	√	√	√	√	√	√	–	–	√	√	√	√	√	–
13	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	–
14	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	√
15	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	–
16	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	–
17	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	–
18	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	–
19	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	√
20	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	√
21	√	√	√	√	√	√	–	√	–	–	√	√	√	√	√	√
22	√	√	√	√	√	√	–	√	√	–	√	√	√	√	√	√

Legend: √ - the product contains the indicated information; – - the product does not contain the indicated information (vertical columns: 1=food name, 2=ingredients content, 3=ingredients causing allergies or intolerance, 4=amount of certain ingredients, 5=net weight, 6=expiry date, 7=special storage conditions and/or conditions of use, 8= name or trade name and address of the business entity in the food industry, 9=country of origin or place of origin, 10=rules for use, if in the absence of such rules, it would be difficult to use the food appropriately, 11=nutrition content, 12=Bulgarian language, 13= a batch number, 14=percentage of dry matter, 15=oiliness in dry matter, 16= voluntary additional information).

The majority of the products examined by us (Table 1) lack two of the categories of mandatory data - special storage conditions and/or conditions of use and instructions for use. However, the European Regulation mentions that these categories are included in the label by the manufacturer, when in the absence of such instructions it would be difficult to use the food in an appropriate way.

We should pay attention to the fact that a large part of the products lack another mandatory category of data – country of origin or place of origin. The National Regulation and the European Regulation No. 1169/2011 stipulates that indicating the country of origin or place of origin is mandatory. The lack of indication may mislead the consumer according to the real country or place of food origin and when the country or place of origin is indicated but it is not the same as that of the main ingredient.

The European Regulation stipulates that all ingredients or additional substances listed in an appendix of this document, causing allergies or intolerance must be present on the product label. In the case of white brine cheeses, the main ingredient belongs to the allergen category “milk and milk products (including lactose)” and in all analyzed labels the ingredient “milk” or “cow’s milk” is in bold or enlarged font size text and most of the labels contain underlined text.

Regarding the mandatory information when labeling white brine cheese - percentage of dry matter and oiliness in dry matter, all farm cheeses contained these data.

Nearly 50% of farmer white brine cheese labels observed contained additional information. We expected such results because farm products are usually of higher price that guarantees the consumer an organic composition, quality raw materials, and following good production practices during the production process. All this is information that the consumers seek and ask for confirmation when purchasing products that they believe are better quality than others on the market. The main additional information that farmer white brine cheeses contained described the duration of ripening of the dairy product; the BNS standard according to which the characteristics of the product correspond; size for products with a larger net weight than usually offered by the manufacturer; precise location of the farmer production with a geographical map, as well as the calculated price per kilogram of the product.

## CONCLUSION

The analysis of the data presented for labeling 22 farmer white brine cheeses gives us a reason to conclude that all the examined products contain the

mandatory information required in the regulatory documents. A large part of them also include additional (voluntary) information, which primarily aims to give greater clarity to the consumer about the organic origin of the product, further details about the farmer’s production and compliance with the national standards for the production of white brine cheese.

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