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Review paper

INTERDISCIPLINARY APPROACH TO THE LABELLING OF ORGANIC PRODUCTION FOOD

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ABSTRACT

Labelling — the final stage of production, which determines its characteristics and properties. In addition to the main regulated elements of labeling, information about the product distinctive features can be applied to the label, which can influence the potential consumer choice. Complete and reliable information allows not only to identify the product, but also to prevent possible consumer deception. Information falsification is one of the most common ways of misleading consumers.

There are several types of marking: consumer, warning, conformity, environmental and special protective. In order to protect the consumer from information falsification for food products, clear rules for marking for mandatory application have been developed, established in the technical regulations of the Customs Union 022/2011 «Food products in terms of its marking» and technical regulations for certain types of products (industry products features).

In recent years, the organic products production is actively developing, the requirements for which in the countries of the Eurasian Economic Union (EEU) are at the design stage. Organic production is based on the principles of environmental friendliness and humanity, as well as the prohibition of the use of means of production intensification (chemical fertilizers, chemotherapy drugs, artificial food additives, etc.). To control the implementation of these requirements, it is necessary to conduct a full analysis of the production of the product «from the field to the counter», which can be carried out only by highly qualified experts. Confirmation of compliance with the requirements is a organic products sign. In world practice, there are several types of eco-labels. The essence of the developed interdisciplinary approach is a comprehensive application of mandatory and voluntary requirements for the organic food products labeling.

1. Introduction

One of the most important legislation requirements in the field of consumer protection in all industrialized countries is to provide consumers with objective, reliable and understandable information about the product. In each of the member States of the EEU this requirement is implemented by the provisions of the laws on consumer protection and applies to any products presented by manufacturers to the Customs Union (CU) market. The CU, in its turn, was formed by an interstate agreement within the framework of the EEU in order to create a common customs space with General regulation of economic activities of its member States (Russia, Belarus, Kazakhstan, Kyrgyzstan and Armenia) [1].

Mandatory requirements of technical regulations for food products relate to the prevention of actions that mislead buyers. And the first and the main stage of implementation of this requirement is to provide consumers with complete information about it. As a rule, product information is provided in the form of labeling, the main purpose of which is the identification of the product to provide the consumer with the opportunity to choose the necessary or desired product with a certain set of properties [1].

High-quality, externally attractive marking with recognizable special signs (for example, the sign of the European certification system of organic products EuroLeaf) is not only a carrier of information, but also increases the competitiveness of the product, ensures its protection against counterfeiting. The information put on the consumer packaging is a link between the manufacturer and the direct consumer, as it provides an opportunity for feedback and complaints. Labeling information about the product, which does not have the necessary degree of reliability, can lead to disorientation of consumers, the emergence of some of them distrust of the manufacturer, and as a result — to reduce the effectiveness of measures to promote the product [1,2,3,4].

Special rules for marking organic products, established in legal documents, as well as General regulatory requirements for food labels and special requirements for groups of products of different raw materials must be applied comprehensively and systematically. The development of a interdisciplinary approach to the labeling of organic food products will streamline the labeling design process and protect consumers from information falsification.

2. Main part

In recent years, the issues of food products falsification are constantly discussed by the expert community of all industries.

In accordance with the Law «On protection of consumers rights» (Art. 10) [5] the manufacturer (contractor, seller) is obliged to provide the consumer with the necessary and accurate information about the goods (works, services), providing the possibility of their correct choice.

Falsification (from lat. *falsifico* — counterfeiting) — actions aimed at deceiving the buyer and/or consumer by counterfeiting the object of sale with a selfish purpose. In a broad sense, falsification can be considered as actions aimed at deterioration of consumer properties of goods (or reduction of its quantity) while maintaining its basic characteristics. Food products falsification is the most often made by deterioration or complete loss of some of the most important properties of the product (the presence of full-fledged proteins, fats, carbohydrates, vitamins, etc.) and safety indicators [6].

It is established by law that falsified — is intentionally changed (fake) and/or having hidden properties and qualities of food products (including biologically active additives), materials and products, information about which is obviously incomplete or unreliable [7].

There are five main types of falsification, each of which is characterized by methods of forgery of genuine goods: assortment, quality, quantity, cost, information and complex. The

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most often there is a complex falsification, in which one of the above types is combined with information. [1,6,8]

Information falsification is carried out by misrepresenting the information in the shipping documents, declaration, certificate, marking or advertising. Information for the consumer is essential when specifying specific properties of the product, such as special purpose (for example, baby food, dietetic food, low allergenic products) or organic origin. Taking into account the current realities regarding the promotion of so-called healthy foods and the development of the organic sector of food products, a new method of information falsification — greenwashing — a special kind of falsification, in which the marking of packaging by means of images, signs and text falsely indicates that it is organic or environmentally friendly [9].

The product identification through a well-designed marking tool to inform consumers about the product properties, minimize the introduction of his misleading information and reduce fraud, including unintentional [10].

High-quality marking of the product serves not only as a carrier of information necessary for its identification, but also ensures its safety through traceability. The information printed on the consumer packaging is a link between the manufacturer and the direct consumer, promotes the product on the market and increases competitiveness.

Regardless of the food product type, labeling is an integral part of the packaging or packaging in which the product is packed. Depending on the packaging type distinguish consumer labeling, labeling group packaging, transport or multi-turn packaging. From the point of view of information about the product, there is a marking: consumer, preventive, confirming compliance (signs of conformity, quality, approval), environmental (environmental marks and statements), as well as a special protective in the form of trademarks, service marks and the name of the place of origin of the product. These types of signs are used as an additional means of sales promotion. Their graphic design is regulated by special requirements to be followed by product developers and its labeling [1, 11,12,13].

The basic requirements for food labelling developed by FAO/WHO are set out in the Codex Alimentarius Standards [14,15,16].

The document establishing mandatory requirements for the labeling of food products produced and/or in circulation in the territory of the EEU is the technical regulation of the Customs Union (TR CU) TR CU022/2011 [17]. It is designed and approved in order to prevent actions that mislead consumers regarding the implementation of consumer rights to reliable information about food products. The use of TR CU022/2011 is the basis for the design of information for the consumer, and also allows to minimize claims from regulatory organizations, customs, large chain stores, etc. in terms of marking [1].

TR CU022/2011 established General mandatory requirements for the labeling of all food products without exception. It explains what information should be provided to the consumer and how it should be placed on the consumer package. In addition, the regulation establishes requirements for information on products placed directly in transport containers. Each unit of consumer packaging must contain marking information directly on it and/or on the label, in some cases, and on the leaflet. Main requirements to labeling of food products that it must be clear, easily readable, accurate and must not mislead consumers. The text part, inscriptions, signs and symbols should be contrasting with the background on which the marking is applied. The method of marking should ensure its safety throughout the shelf life of food products in compliance with the manufacturer's storage conditions [17].

Fundamentally important for the labeling of food products of all industries without exception is the adoption of The EEC Council decision No. 75 [18], which clarifies the criteria of «readability» and «clarity», as well as establishes new requirements for the font size of the text part of the marking. The decision comes into force on 28.04.2009, taking into account the order on transitional provisions [19], products marked in accordance with the previous requirements of TR CU022/2011 may be in circulation for 24 months [1].

The criteria for easy readability are the clarity and legibility of the font used in the marking, the size (set by Change), as well as the contrast between the background color and the color of the information applied to it, providing the ability to read the information without the use of optical devices, except for those used for the correction of visual defects (glasses, contact lenses, etc.).

The criterion of clarity is the unambiguity of the transfer of the meaning of information about food products in the form of text or text and image.

However, when using TR CU022/2011, it is necessary to take into account additional requirements of technical regulations for certain types of food products in terms of its labeling, for example, for dairy products — TR CU033/2013 «On the safety of milk and dairy products» [20]. The so-called «vertical» regulations Supplement the mandatory requirements, taking into account the specific properties of groups of homogeneous products.

Requirements for the label font size of dairy products is a good example of the use of «vertical» regulations. In accordance with TR CU033/2013 (part 95), the name of the milk, milk compound and milk-containing product is indicated on the front side of the consumer package using a font of the same size not less than 9.5 pins, on the consumer container with a volume or weight less than 100 ml (g) — using a font of the same size not less than 8.5 pins, and the name of the milk-containing product with a substitute for milk fat — 2.5 mm (part 81) [20].

In addition to the minimum necessary information about the product, the marking should include information about the distinctive features of the product that distinguish it from analogues on the shelf. Proof of these features can be, for example, the analysis of the composition or properties of the product using high-precision methods (for example, for a fortified or high-protein product).

However, it is often on the shelves you can find products with special reference to methods of cultivation or manufacture of the product: «green», natural, organic, eco — friendly and organic products. Often these concepts are nothing more than a marketing ploy and do not have any evidence.

Confirmation of the declared characteristics should be the analysis of the technological process or the full life cycle of the product (PLC), which allows to assess the methods of production and the impact of all stages of production and disposal of the product on the environment — «from the field to the counter».

Evaluation of the PLC is a complex, time-consuming process that requires the involvement of many experts. To indicate in the labeling of the product on the organic method of its production, it is customary to use environmental labels and declarations — Ecolabel. Around the world, eco-labels and eco-labels help a non-expert buyer choose their preferred product. They play a crucial role in the development of ecological production and consumption, enable producers and consumers to speak the same language, as well as contribute to the development of the market of organic products, creating favorable conditions for its promotion in the market [21].

Ecolabel is a tool that allows you to assess the environmental friendliness of the product on the basis of a multi-criteria evaluation system and bring this information to the consumer in the most convenient legal form. The concepts of environ-

mental labelling are standardized in the ISO 14020:2000 series of international standards «environmental Labels and declarations. Basic principles» [22], including specially developed guidelines and procedures for application. On the territory of the Russian Federation is identical to the international standard GOST R ISO 14020 [23]. This standard defines the basic principles for the development and use of environmental labels and declarations, which are nothing more than statements informing about the environmental aspects of products or services. They may take the form of a statement, mark or graphic on the product or packaging label contained in the accompanying documentation, technical description, brochure, public information sheet or otherwise. To date, there are a huge number of different signs and eco-labels, the schemes of which are systematized in ISO international standards and reduced to three types — I, II and III [3].

Type I eco-labels are considered to be the most comprehensive, independent and trustworthy [3]. In accordance with the international standard ISO 14024 [24,25] its characteristic features are:

— voluntary — manufacturers go for certification in order to confirm their competitive advantage, but not in order to comply with legal and other mandatory requirements;
— leadership — highlighting the best from the point of view of the environmental performance of products in its category;
— generality — the criteria for type I eco-labelling are based on life cycle analysis and scientific data and include the assessment of the following environmental impacts: resource consumption, chemical pollution, generation of production and consumption wastes, contribution to climate change, etc.;
— objectivity — development of criteria for eco-labeling is carried out by several independent parties — environmental institutions, associations, representatives of the market segment, research institutes and research centers;
— reliability — type I Ecolabel is assigned to products after passing a transparent certification procedure (assessment of compliance with criteria) in an independent organization — certification body.

The world Association of eco-labels (GEN) unites many signs related to type I eco-labels. Members of the Association adhere to uniform rules and principles of the assignment of signs, thereby ensuring consumer confidence in their programs. The GEN includes 26 eco-labeling programs presented in 50 countries, including such well-known as the «European flower» for non-food products, the «Blue angel» for machinery and construction materials, the «Northern Swan» and others. Russia is represented in the GEN eco-labeling of the St. Petersburg Ecological Union «Leaf of life» [27].

A special group of signs, so-called «type I-like», includes signs based on the principles of type I eco-labels (voluntariness, objectivity, independence), but their criteria do not affect the entire life cycle, but one or more environmental benefits. Common examples of such marks are Energy Star (sets the maximum energy consumption level for electronic devices) and FSC (forest stewardship Council certification system mark). Also, this group can include numerous «organic-marking» for food products, based, as a rule, on the legally enshrined requirements [3]. For example, the EU organic labelling «EuroLeaf» is based on the requirements of EU Directive 834/07 [28] and identifies products grown in accordance with the principles of sustainable agriculture, with strict restrictions on the use of chemicals [9].

The second group of eco-labels according to GOST R ISO 14021 [29] covers numerous signs developed by the manufacturers. Such signs and statements convey to the consumer environmentally oriented information about the products in the form of verbal language or graphic images. For example, information about the environmental friendliness of individual stages of the life cycle, the environmental aspects of production, the components of the product or packaging. Environmental declarations of this group may reflect information of any completeness, but their main difference from other types of signs, including from type I eco-labels, that type II environmental declarations are not verified by an independent party.

Examples of type II applications are: «natural», «biodegradable», «obtained with renewable energy», «grown without fertilizers and pesticides», etc.

Type III environmental declarations in accordance with GOST R ISO 14025 [30] are intended primarily for the exchange of environmental information between entrepreneurs, however, can also be used to transfer information from business to consumer [3].

In fact, these declarations are full-fledged environmentally relevant information about the whole PLC verified by an independent party. This type of environmental Declaration is called EPD (Environmental Product Declaration), it does not provide an assessment, and provides buyers to evaluate products and compare them with each other in terms of environmental benefits. Therefore, environmental declarations of type III are difficult for ordinary buyers, they are used mainly by professionals.

Thus, the most important for the consumer are eco-labels of type I, which allows to state unequivocally that the production of the product does not have a negative impact on the environment. A striking example of the latter are organic products, gaining popularity among consumers around the world.

The organic agriculture philosophy is based on five principles:

1) health — maintaining and improving the health of soils, plants, animals and humans as a whole ecosystem;
2) environmental friendliness — maintaining a closed cycle of production, processing and sale of the product on the basis of the existence of natural ecological systems and cycles, coexisting with them and saving them;
3) uniqueness — the original form of production, processing and sale of agricultural products, taking into account the uniqueness of the environment, economy and identity of the region of origin.
4) justice — sustainable development of rural areas on the basis of relations that guarantee a fair distribution of income and resources;
5) care — the organization of organic agriculture, which allows you to conduct independent, Autonomous economic activity and take care of the renewal of resources for this [31,32,33,34].

It is considered that the products of organic production is the one that is produced with minimal impact on the environment and the use of sparing technological processes products from organic raw materials of plant, animal or other origin, obtained without the use of pesticides, antibiotics and other drugs away from the objects of environmental pollution [9].

In August 2018, in Russia was signed No. 280-FZ «On organic products and amendments to certain legislative acts of the Russian Federation» [35] (hereinafter — the Law), which regulates relations related to the production, storage, transportation, labeling and sale of organic products. In accordance with the requirements of the Law, after successful completion of the procedure of conformity of production with the established requirements, organic producers have the right to place a special marking on the packaging of consumer and/or transport packaging of the product. It can be in the form of a combination of inscriptions and a graphic image (sign) of organic products of a single sample. This marking is a distinctive feature of organic products and is presented in the form of a combination of in-

scriptions and a graphic image (sign) of a single sample. The law provides for the possibility for the mark of organic products to be applied and read information about the producers of products and the types of products they produce from the unified state register [36,37].

The law establishes that labels used to label organic products may contain the word «organic», as well as its abbreviations or derivative words separately or in combination with the name of organic products. No other terms, combinations, abbreviations or derivatives may be used. Illegal placement of organic marking is prosecuted in accordance with the legislation of the Russian Federation.

Legal regulation of relations in the field of organic production is based, among other things, on the normative legal acts of the Russian Federation [35]. Currently, Russia has a system of standards, including requirements for the production of organic products and its circulation in the market, the rules of conformity assessment and terminology base.

In accordance with the requirements of GOST 33980 [38], the term «organic product» is not allowed to be used for a product containing genetically modified organisms (GMOs) consisting of or produced from GMOs. Note that the products obtained with the use of GMOs, according to the requirements of the cu regulations are marked with an appropriate sign.

In the marking of products certified for compliance with the rules of organic production in accordance with GOST 33980, the phrase «organic product» is placed in a prominent place so that it is easy to read and not erasable. The use of other terms, their combinations, abbreviations or derivatives with respect to organic products is not allowed [38].

The conducted research on the development of a unified interdisciplinary approach to the labeling of organic food products was based on the systematization of all requirements for the labeling of consumer packaging products and the complex application of documents of different levels, taking into account the hierarchical principle (Figure 1).

3. Conclusion.

The marking of an organic product with an appropriate mark is, in fact, the only criterion when referring it to this group of products, as well as the choice of its consumer. That is why the Law establishes special requirements for the labeling of organic products and provides for liability for their improper performance for unscrupulous manufacturers. Interdisciplinary approach of complex application of mandatory and voluntary requirements will allow to distinguish food products of organic production among similar food products on the store shelf, as well as provide information security of the consumer.

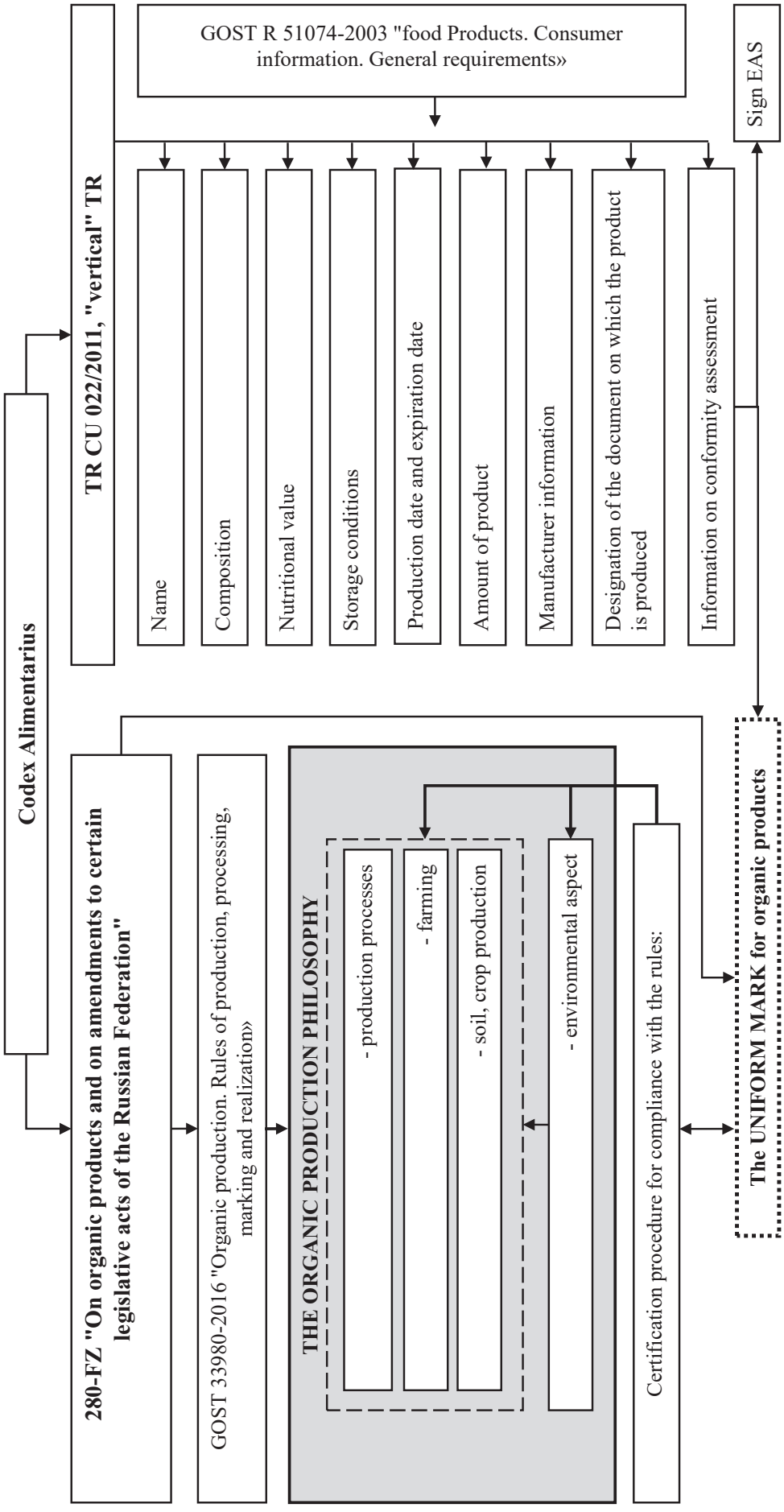

Figure 1. Scheme of a interdisciplinary approach to food labeling, organic production

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