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ENHANCING NATIONAL STANDARDS FOR MEAT AND DAIRY INDUSTRY

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The subject of research *is standardization as one of the forms of technical regulation in the food industry of Ukraine, in particular in the production of milk and milk products, meat and meat products, determination of safety and quality parameters of the specified food raw materials and finished products made from those, as well as installations and equipment for the food industry.* ***The purpose of the study*** *is to analyze the state of standardization in the production of dairy and meat products, highlight the existing problems and possible ways to solve them, as well as outline the role that the Technical Committee for Standardization 140 "Milk, meat and products of their processing" should play in these processes.* ***Methods****. During the research, a systematic approach was used to research factual materials, in particular scientific and scientific-practical literature, regulatory legal acts, regulatory documents and the like, abstract-logical approach to the synthesis of research results and the formulation of conclusions.* ***The results of the study.*** *National standards of Ukraine DSTU is the base of the technical regulation in relation to food products and methods of their control. The above also applies to standardization in the field of milk and meat products, which is within the competence scope of the Technical Committee for Standardization 140 "Milk, meat and products of their processing". Technical Committee 140 carries out significant work to develop new and update existing national standards in accordance with its area of competence, in particular, it has significant success in harmonizing international and European standards. As of January 15, 2021, according to the classification code 67.100 (Milk and milk products) out of 203 standards of the nationwide force, 103 standards (50.7%) were developed by harmonizing the relevant international standards EN, ISO, etc. According to the classification code 67.120 (Meat, meat products and other animal products) – 202 units, 26 units and 14.1 %, respectively, according to the classification code 67.260 (Installations and equipment for the food industry) – 99 units, 86 units and 86.9%, respectively. The issue of attracting extra-budgetary funds for the harmonization of international standards and the implementation of the entire range of works on standardization is urgent. The issue of proper regulatory support for the production and operation of specialized technological equipment for food and processing industry enterprises is relevant, for which it is advisable to combine the domestic traditions of standardization with the priorities of safety and hygiene of machines, as well as ecology, which are in force in international practice.* ***Scope of research results.*** *The results of the studies performed will be*

used in the field of technical regulation, in particular, national standardization, of milk and milk products, meat and meat products, determination of safety and quality indicators of the specified food raw materials and finished products made from it, as well as installations and equipment for the food industry.

Key words: *milk, meat, products of milk processing, products of meat processing, standardization, standards, harmonization of standards, equipment for food industry*

ВДОСКОНАЛЕННЯ НАЦІОНАЛЬНИХ СТАНДАРТІВ У М'ЯСНІЙ І МОЛОЧНІЙ ПРОМИСЛОВОСТІ

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Предмет дослідження *– стандартизація, як одна з форм технічного регулювання у харчовій промисловості країни, зокрема у виробництві молока та молочних продуктів, м'яса та м'ясних продуктів, визначання показників безпечності та якості зазначеної харчової сировини і виготовлених з неї готових виробів, установок та устаткування для харчової промисловості тощо.* ***Мета дослідження*** *полягає у аналізуванні стану стандартизації щодо виробництва молочних і м'ясних продуктів, виокремленні наявних проблем та можливих шляхів їхнього розв'язання, а також у окресленні тієї ролі, яку повинен грати у цих процесах Технічний комітет стандартизації 140 «Молоко, м'ясо та продукти їх переробки».* ***Методи.*** *Під час досліджень використовували системний підхід до досліджень фактологічних матеріалів, зокрема наукової та науково-практичної літератури, нормативно-правових актів, нормативних документів тощо; абстрактно-логічний підхід щодо узагальнення результатів дослідження та формулювання висновків.* ***Результати дослідження. Н****аціональні стандарти України ДСТУ є основою технічного регулювання щодо харчових продуктів, методів їхнього контролювання тощо. Зазначене стосується й стандартизації у царині молочних і м'ясних продуктів, яка належить до сфери компетенції Технічного комітету стандартизації 140 «Молоко, м'ясо та продукти їх переробки. Технічний комітет 140 проводить значну роботу з розроблення нових та актуалізації чинних національних стандартів відповідно до сфери своєї компетенції, зокрема має значні успіхи в гармонізації міжнародних і європейських стандартів. Станом на 15 січня 2021 року за класифікаційним кодом 67.100 (Молоко та молочні продукти) з 203 стандартів загальнодержавної чинності 103 стандарти (50,7 %) було розроблено шляхом гармонізації відповідних міжнародних стандартів EN, ISO та ін. За класифікаційним кодом 67.120 (М'ясо, м'ясні продукти та інша тваринна продукція) – 202 одиниці, 26 одиниць і 14,1 %, відповідно, за класифікаційним кодом 67.260 (Установки та*

устаткування для харчової промисловості) – 99 одиниць, 86 одиниць та 86,9 %, відповідно. Нагальним є питання залучення для гармонізації міжнародних стандартів і виконання всього спектру робіт зі стандартизації позабюджетних коштів. Актуальним є проблема належного нормативного забезпечення виробництва та експлуатації спеціалізованого технологічного устаткування підприємств харчової та переробної промисловості, для чого доцільно поєднати вітчизняних традицій стандартизації з чинними у міжнародній практиці пріоритетами безпеки та гігієни машин, а також екології. ***Сфера застосування результатів дослідження.*** *Результати виконаних досліджень використовуватимуться у сфері технічного регулювання, зокрема національної стандартизації, молока та молочних продуктів, м'яса та м'ясних продуктів, визначання показників безпечності та якості зазначеної харчової сировини і виготовлених з неї готових виробів, установок та устаткування для харчової промисловості тощо.*

Ключові слова: *молоко, м'ясо, продукти переробки молока, продукти переробки м'яса, стандартизація, стандарти, гармонізація стандартів, обладнання харчової промисловості*

Formulation of the problem. Coming across in a text or hearing in oral speech the words "standard" and "standardization", one usually imagines some incredibly unshakable and categorically correct. There is probably some truth in this regard with standards, but the matter with standardization in general, and with standardization in the field of dairy and meat production in particular, is much more complicated and multiple. Standardization is a collective activity aimed at establishing and implementing standards for defining the requirements that goods, products, services, procedures, etc. must meet. The main purpose of standardization is to resolve conflicts that may arise when repetitive situations are implemented, it covers the development, distribution and application norms, which may or may not be obligatory, and this is a dynamic and ongoing process [1-3].

Standardization requires clear rules and formulations that exist and must be mastered by specialists. In this sense, one should, first of all, recall the current Law of Ukraine "On Standardization", where the definition of the term "standard" is given: – it is a "normative document based on consensus, adopted by a recognized body, which establishes rules, instructions or characteristics of the activity or its results, and is aimed at achieving the optimal degree of ordering in a particular area" [4].

According to the current concept of standardization in Ukraine, standards, including the national standards of Ukraine DSTU, are voluntary – except for the cases where references to standards in existing regulatory legal acts make these standards mandatory for implementation [4]. Standards that regulate general specifications and specifications for food products, usually do not belong to the mentioned specific group of standards and, therefore, are voluntary. During the Soviet era, the title page of each state standard GOST contained a clause "Non-compliance with the standard is prosecuted by law", which was by no means a guarantee of high quality of a product, but fully corresponded to the principles of planned economy and economic self-isolation. The approach to standardization in independent Ukraine is fundamentally different, which takes into account the principles of organizing the economic life of the state on the principles of the market, and it is also possible and advisable to get involved in global economic processes. So, each manufacturer today can voluntarily choose a standard or a normative document of the level of specifications TU, according to the norms of which the products will be manufactured, and the requirements of which these products must necessarily comply. Both Ukrainian producers and domestic consumers continue to focus on the current regulatory documents, primarily on the national standards of Ukraine DSTU, which remain an important factor in the formation of the domestic food market – their range and quality characteristics [5]. This also fully applies to milk and meat products.

To understand the fundamental approaches to the standardization of food products, in particular milk and meat products, it is important to understand the concepts of "quality" and "safety" applied to them, the connection between these concepts and, at the same time, their nonidentity. Quality, in the sense of the characteristics of foods, is the ability to meet the needs of consumers and meet certain requirements for physical, chemical and sensorial (taste, odor, etc.) parameters. Food safety is the most important, but by no means the only component of quality, which includes the above-mentioned objective and subjective characteristics of foods, as well as their cost. Thus, food safety is a narrow and well-defined concept that concerns the life and health of consumers. It is the food safety that the legislation of civilized countries deals with, and it is it that the state guarantees to the citizens – with the exception of the quality of products for socially vulnerable groups (children, persons with special needs, etc.), which is also an issue for the state institutions. As a rule, the issues of food quality are dealt with by numerous public organizations of producers and consumers, thanks to their activities, an acceptable for the population compromise regarding the consumer properties of milk and meat products is achieved.

The above is quite logically reflected in the somewhat different nature of the national standards of Ukraine and international standards and consists in the predominant use of the standards of the European Union EN and the International Organization for Standardization ISO to determine the safety parameters of food raw materials and finished food products. But the overwhelming majority of the national standards DSTU, standards RST of the former Ukrainian SSR and interstate standards GOST, all of these being still in force in Ukraine, standardize specifications and general specifications for the manufacture of food products. Conceptually different in comparison with the typical national standards DSTU, there are international standards CODEX STAN of the FAO/WHO Codex Alimentarius Commission. Although these standards normalize the quality parameters of food products, they are recommendatory, and in terms of volume and content differ significantly from the DSTU standards, because they describe the characteristic features of the product itself, and not numerous details of the technological process of production itself and production control of food products.

Both in the domestic and foreign markets, it is the food safety and quality of dairy and meat products that are the determining factors in their competitiveness. Usually, safety and quality requirements are noted in commercial transactions in the form of directly prescribed specifications, or in the form of references to relevant standards. Within the framework of the current "Association Agreement between the European Union and the European Atomic Energy Community and their member states, of the one part, and Ukraine, of the other part" [6], domestic processing enterprises received a number of preferences in the export of food products to the member states of the European Union, however, only those manufacturers who have fulfilled all EU requirements for the safety of the specified products and meet the quality specifications for the certain products on the common market of the European Union can benefit from these preferences. In most developed countries, rather strict criteria for food raw materials and finished products have been established, which necessitates the adaptation of national legislative and regulatory documents of Ukraine to legislative and regulatory documents of the international level [7].

Now in the standardization of dairy production, a problematic issue is the proper coverage of methods for analyzing the physical and chemical parameters of milk and milk products by regulatory documents. But the issues of regulatory regulation of numerous milk-containing products can be considered to have been regulated in a sufficient way [8]. Meat products also play an important role in ensuring a healthy nutritious diet for consumers, in particular in supplying a complete protein component to this. The said products are included in the list of strategically important ones, therefore, ensuring their high quality and proper safety are among the highest priority tasks of the modern food industry, and the national regulatory framework is the guarantor of the state's food security. However, domestic standardization does not yet fully comply with international standards [9,10]. Until recently, meat product manufacturers have

been using numerous methods for determining quality parameters in accordance with the standards GOST of the former Soviet Union. Now the force of these standards has been canceled, however, a full replacement of the mentioned methods with modern methods in accordance with international and European standards, unfortunately, has not taken place due to lack of funds to carry out such work [11].

According to Art. 8 of the Law of Ukraine "On Standardization" [4], to resolve these and other issues of standardization, are obliged, within their competence, the subjects of standardization, namely the central executive body that ensures the formation of state policy in the field of standardization, the central executive body that implements state policy in the field of standardization, the national standardization body, technical committees for standardization, as well as enterprises, institutions and organizations that carry out standardization. According to Art. 15 of the said Law of Ukraine, 'the technical committee for standardization is a form of cooperation between interested legal entities and individuals for the purpose of organizing and performing work on international, regional, national standardization in certain areas of activity and on fixed objects of standardization'. Technical Committee for Standardization 140 "Milk, meat and products of their processing", created by order of the State Standardization Committee of Ukraine on May 22, 2001, is authorized to resolve all of the above tasks concerning the products of the dairy and meat industry. The functions of the secretariat of TC 140 are performed in accordance with the established procedure [4,12,13], by the Institute of Food Resources of the National Academy of Agrarian Sciences of Ukraine. Acting as a secretariat by a specialized state scientific organization, the Institute is, allows to properly maintain a high professional level of the development of national standards, maintaining the necessary balance between the technical and economic interests of producers and the need to maintain a traditionally high level of quality of milk and meat products, produced according to national standards DSTU [3].

An analysis of scientific literature sources showed that coverage of standardization issues in the dairy and meat industry is usually limited to issues of technical regulation of safety and quality parameters of milk and meat products, as well as other issues within the framework of specifications for their manufacture, but only a few scientific works are devoted to profile activities of technical committees for standardization, whose areas of activity cover milk, meat, processed products of these, as well as food raw materials and food products in general. An example of the publication of the specified content is [14], which describes in detail the work of the technical committees of standardization of the Republic of Cuba on the implementation of the principles of food safety and quality in national standards. However, this approach contradicts the current foundations of profile standardization in Ukraine, when safety requirements are removed from the texts of voluntary standards, instead of standardizing parameters of food safety this being the subject of mandatory Laws of Ukraine and Technical Regulations [3].

It can also be stated that it is possible and expedient to harmonize the national array of standards for milk and meat products, methods for determining their physical, chemical, sensorial and other indicators, the current standards of the European Union, Codex Alimentarius and a number of the standards generally recognized in the world (for example, ISO and IDF). Analysis of the literature shows that there is an obvious tendency to shift the emphasis from industry-oriented standards to socially-oriented ones, and the priority of these standards consists in taking into accounts the needs and interests of consumers of food products. It is also important to involve in the profile standards, clearly to all manufacturers, consumers and other concerned parties, the rules for the classification of milk and meat products, as well as products similar in sensorial properties, but different, to a lesser or greater extent, in their composition – for example, milk-containing and meat-containing products. Due attention shall also be paid to the development of standards acceptable for application in practice on methods of control of parameters of food products in order to detect deliberate falsifications [3,7,15].

At the same time, it should be taken into account that there are sectors where the appropriate adequacy of the introduced standards for milk and meat products is in a significantly

different realm than the market expediency. These sectors include, in particular, long-term storage of products in order to ensure the national food security, products with special characteristics for use during periods of emergencies etc. [3,16,17].

Materials and methods. The subject of this material is the current state of standardization and ways of improving national standards in the meat and dairy industry, assessing the possibility and feasibility of performing this work within the competence of the Technical Committee for Standardization TC 140 "Milk, meat and products of their processing". In order to carry out the research, we used a systematic approach to factual materials, in particular, scientific and scientific-practical literature, regulatory and legal documents, an abstract-logical approach to the generalization of research results and the formulation of conclusions.

Results and discussion. According to the Law of Ukraine "On Information for Consumers of Food Products" [18], the obligation to bring national legislation in line with the provisions of EU legislation the normatively introduced including the provision of providing consumers with information about food products, fulfilling Ukraine's obligations in the field of sanitary and phytosanitary measures under the Agreement of Ukraine with EU [6] and ensuring a high level of protection of the health and interests of consumers, the introduction of liability of operators of the food market (also covers information on food products) for misleading consumers. The above provisions are guided in its core activities by the Technical Committee for Standardization 140 "Milk, meat and products of their processing", which is duly charged with coordinating and directly performing standardization work in the meat and dairy industry. The list of standardization objects determined by the current Statutes of TC 140, in accordance with the current NC 004:2020 "National classifier of regulatory documents" [19], is shown in Fig. 1.

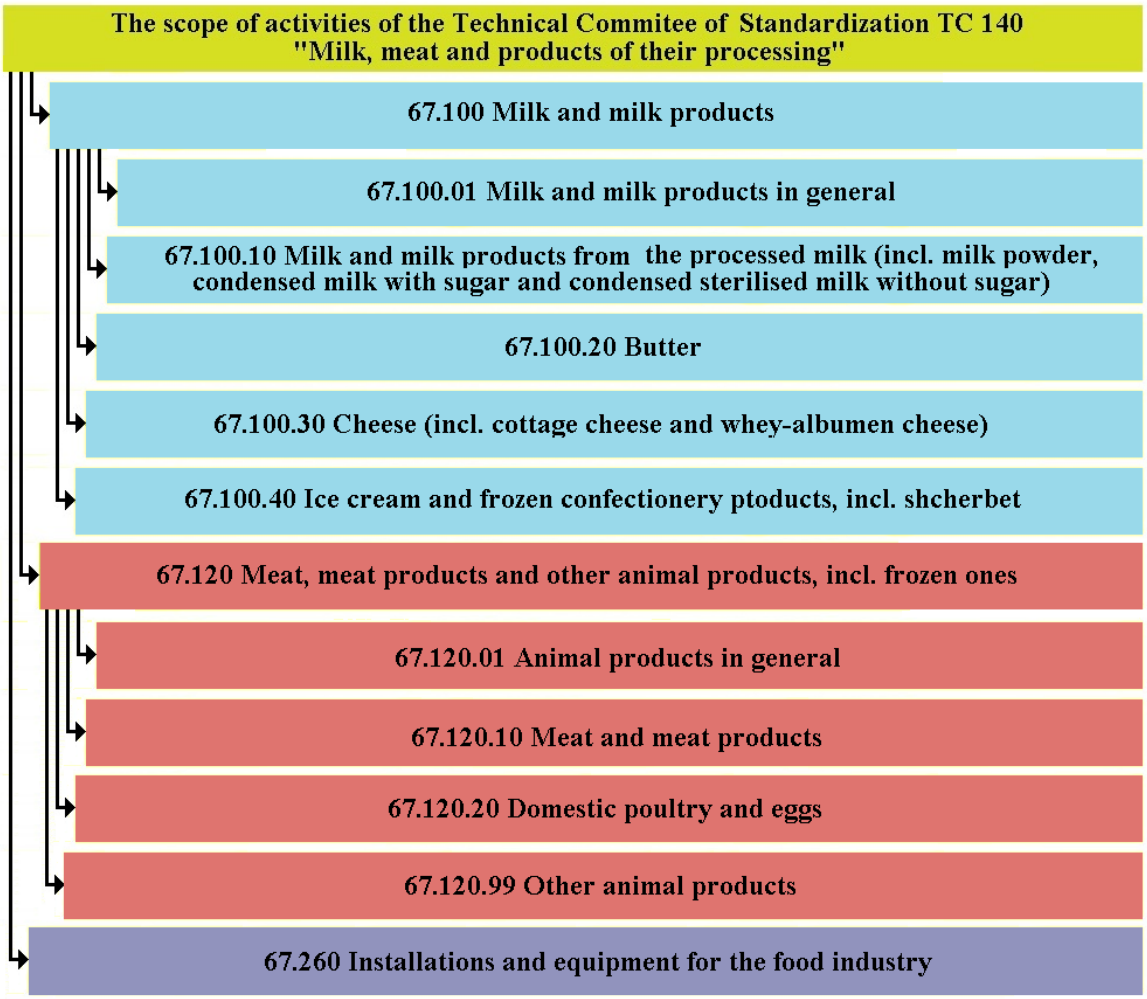

Fig. 1. The hierarchy of standardization objects TC 140 in accordance with the current NC 004:2020 "Ukrainian classifier of normative documents" [19]

The structure of the technical committee has been determined according to DSTU 1.14:2015 [13] and the Statutes of TC 140. The technical committee has two permanent subcommittees: SC 1. Milk and Milk Products (codes of the standardization objects 67.100, 67.100.01, 67.100.10, 67.100.20, 67.100.30, 67.100.40, 67.260) and SC 2. Meat and Meat Products (codes of the standardization objects 67.120, 67.120.01, 67.120.10, 67.120.20, 67.120.99, 67.260). Within the framework of TC 140, PC1 and PC 2 of TC, if necessary, permanent or temporary working groups are created, in which experts are involved to perform special tasks, the expert being appointed by members of the technical committee. Also, specialists and scientists from interested enterprises (organizations) of customers, developers, manufacturers of products, bodies and organizations for standardization, metrology and certification, public organizations of consumers and representatives of other interested parties are invited as experts to the working groups [13].

In the past 2020 year, the most of TC 140 activities, taking into account the national quarantine measures, were carried out in absentia. In particular, 3 remote meetings of TC 140 were held according to the norms of DSTU 1.14: 2015 [13]. TC 140 members also had the opportunity to express their views on standardization issues in the dairy and meat industry during 3 on-line votations. Among the most important issues, considered in 2020, was the provision of a professional opinion on the draft Law of Ukraine "On introducing amendments to some legislative acts of Ukraine regarding food products, imitate milk and dairy products" (reg. No. 3516). The issue of introducing a proposal for the development of amendment No. 1 to DSTU 4274:2019 "Canned milk. Condensed whole milk with sugar. Specifications" [20], developed by the National association of manufacturers of baby food, canned milk and juice products" Ukrkonservmoloko".

A successful completion of the longstanding work on the DSTU 3662:2018 "Raw milk cow. Specifications" [21] can also be considered a significant achievement in the activities of TC 140 in recent years. The said development was carried out in compliance with the norms of the Law of Ukraine "On the basic principles and requirements for the safety and quality of food", introduced in accordance with [22], therefore, among the norms of this standard there are no norms introducing requirements for milk safety and control of its indicators. The frequency of sampling and testing required as part of sanitary control processes is determined by market operators in accordance with the provisions of [23]. From January 1, 2019 DSTU 3662:2018 [21] was adopted in accordance with the established procedure, but the outdated DSTU 3662-97 "Whole cow's milk. Procurement Requirements" [24], which has been used by milk producers and processors for more than twenty years, was abrogated [3].

Harmonization of national standards of Ukraine with international standards (EN standards of the European Union, CODEX STAN of the Codex Alimentarius Commission, ISO of the International Organization for Standardization, IDF of the International Dairy Federation, etc.) in various sectors of the food industry, in particular in the dairy and meat industry. Harmonization of a significant part of domestic national standards with international and European ones has been already done. Today, a significant part of the standards for food products standards, methods for determining their physical, chemical and sensorial parameters have been harmonized. The said harmonization has been carried out with such categories of standards as EN, Codex Alimentarius, ISO, IDF, etc. Since the beginning of 2000, the significant work in the field of harmonization of national standards of Ukraine (DSTU) with the International and European standards for food products has been publicly funded and fulfilled. In particular, normative documents have been harmonized and provided for use, which standardized methods for monitoring the parameters of food products in order to identify deliberate falsifications [7,11,15].

For a proper assessment of the state of harmonization of standards of national strength, calculations were carried out, which made it possible to determine what is the proportion (in percentage) of harmonized standards of the total number of standards in force in the food industry by groups in accordance with code 67 "Technology of food production" according to

NK 004: 2020 [19]. The results of this work as of the beginning of 2021 are presented in tables 1 and 2.

Table 1

Harmonization of standards on the food industry by the code 67 "Technology of the manufacturing food products"

as on 15 January 2021

Code according to NC 004:2020	Technical committee of standardization	Designation of a group according to NC 004:2020	Number of standards*		Harmonization rate, %
			in a group	including harmonized**	
67.020	TC 24, TC 67, TC 152, TC 153, TC 154	Technological processes in the food industry	19	3	15.8
67.040	TC 152, TC 190	Food products in general	23	17	73.9
67.050	TC 24, TC 64, TC 67, TC 153, TC K 154, TC 179	General methods of controlling and analyzing food products	97	45	46.4
67.060	TC 64, TC 67, TC 86, TC 153, TC 170	Cereals, legumes and products of their processing	186	50	26.9
67.080	TC 24, TC 71, TK 160, TC 179	Fruit. Vegetables	388	137	35.3
67.100	TC 140	Milk and milk products	203	103	50.7
67.120	TC 140, TC 149, TC 158, TK 182	Meat, meat products and other animal products	202	29	14.4
67.140	TK 152, TC 160	Tee. Coffee. Cocoa	49	37	75.5
67.160	TC 24, TC 64, TC 67, TC 150, TC 154, TC 179	Beverages	208	29	13.9
67.180	TC 56, TC 64, TC 152, TC 158	Sugar. Sugar products. Starch	75	11	14.7
67.190	TC 152	Chocolate	5	3	60.0
67.200	TC 86, TC 110	Food oils and fats. Oilseeds	204	103	50.5
67.220	TC 53, TC 58, TC 64, TC 86, TC 152, TC 160, TC 182	Spices and seasonings. Food additives	89	34	38.2
67.230	TC 24, TC 152, TC 153, TC 154	Prepacked food products and precooked food products	16	0	0
67.240	TC 24, TC 64, TC 152, TC 153, TC 154, TC 160, TC 179, TC 182	Sensorial analyzing	21	19	90.5
67.250	National Standardization Authority, TC 116	Materials and items in contact with food products	25	25	100
67.260	TC 24, TC 140	Installations and equipment for food industry	99	86	86.9
Total by the classification code 67			1909	731	38.3

* Standards of the nationwide validity (DSTU, GOST, etc.)

** National and interstate standards in force in Ukraine, harmonized with European and international ones (DSTU EN, DSTU ISO, GOST ISO, etc.)

Table 2

Harmonization of standards on the food industry by the allied codes 01.040.67 "Food production technology (Vocabularies)" and 07.100.30 "Food microbiology"
as on 15 January 2021

Code according to NC 004:2020	Technical committee of standardization	Designation of a group according to NC 004:2020	Number of standards*		Harmonization rate, %
			in a group	including harmonized**	
01.040.67	TC 19, TC 86, TC 182	Food production technology (Vocabularies)	51	8	15.7
07.100.30	TC 24, TC 64, TC 67, TC 154	Food microbiology	113	76	67.3
Total by the classification codes 01.040.67 i 07.100.30			164	84	51.2

* Standards of the nationwide validity (DSTU, GOST, etc.)
** National and interstate standards in force in Ukraine, harmonized with European and international ones (DSTU EN, DSTU ISO, GOST ISO, etc.)

From the above information, it can be concluded that the Technical Committee 140 has done a lot to harmonize European and international standards for technical requirements for milk and meat products, methods for determining their quality indicators, requirements for specialized technological equipment, and the like. As of January 15, 2021, according to the classification code 67.100 (Milk and dairy products), out of 203 national standards, 103 standards (50.7%) were developed by harmonizing the relevant international standards EN, ISO, etc. According to the classification code 67.120 (Meat, meat products and other animal products) – 202 items, 26 items and 14.1%, respectively, according to the classification code 67.260 (Plants and equipment for the food industry) – 99 items, 86 items and 86.9%, respectively. In general, the degree of harmonization of national and interstate standards (GOST) in force in Ukraine for the production of food products and the determination of parameters of their safety and quality is 38.3%.

The successful work of TC 140 on the introduction in Ukraine of modern principles of the standardization in the profile of its activities is facilitated by participation in the work of international and regional technical committees as an active member (P-member) or observer (O-member). These are: the technical committee ISO / TC 34 "Food Products" of the ISO International Organization for Standardization (P-member), technical committees of the European Committee for Standardization CEN (P-member), namely CEN / TC 302 "Milk and milk products – Method of sampling and analysis" and CEN / TC 153 "Machinery intended for use with foodstuffs and feed" (P-member), as well as Interstate Technical Committees of the Interstate Council for Standardization, Metrology and Certification ISC (O-member): ITC 116 "Eggs, agricultural poultry, poultry meat and products of their processing", ITC 226 "Meat and meat products", ITC 256 "Machines and equipment for the food and processing industry, trade and public catering enterprises", ITC 526 "Functional food products" and ITC 532 "Milk and products of its processing".

Effective and prompt harmonization of international and European standards in Ukraine requires a rational determination of an expedient form of harmonization within the framework of DSTU 1.7: 2015 "National standardization. Rules and Methods for Adopting of International and Regional Normative Documents" [25], which provides for various options for the adoption and application of international and regional standards in Ukraine, namely: "validation", "cover" and "reedition". In case of harmonization of a certain standard by "validation" or "cover", the translation of these standards into the state language (Ukrainian) is not carried out. In the case of a "reedition", the adoption of a standard can be realized by "reprint" (with attachment, if necessary, of the translated text as an attachment) or "translation" (with or without reprint of the

original). Since the beginning of the harmonization work and until recently, the vast majority of these standards have been harmonized in a long and costly way of identical translation. In order to significantly accelerate the work on the harmonization of international standards, it is recommended to adopt standards using the methods of "validation" and "cover" as these do not require a translation of the original text. It is fair to say that the last two methods are rational in the case of a narrow focus of the scope of a certain standard or the availability of official texts of international standards in Russian, the most of the Ukrainian specialists are fluent in. But the harmonization without translation is not advisable for the standards of frequent use, since it can become an obstacle for their free use in Ukraine, lead to many unofficial translations done and, as a result, to different interpretations of their provisions.

Another important issue is participation in the development of interstate GOST standards, developed within the framework of the Interstate Council for Standardization, Metrology and Certification, Ukraine being its member, and their implementation as national ones. Certainly, the main direction of the foreign economic course of Ukraine is collaboration with the countries of the European Union and the priority of harmonizing international and European regulatory documents, however, adding the interstate standards to the regulatory framework of Ukraine, and their implementation within the commercial agreements with the countries of the former USSR , it is quite expedient in the sense of preserving old and establishing new mutually beneficial trade and economic relations [3].

It should also be noted that, despite the development of numerous national DSTU standards on specifications for food products and methods for determining their safety and quality parameters, a significant array of regulatory documents until recently have been GOST standards of the former Soviet Union. Due to the cancellation of their validity from January 1, 2019, important sectors of food production were left without technical regulation [3], the number of national standards was significantly reduced: at the end of 2018, 257 standards of the dairy profile belonged to the specified category of regulatory documents, while now the number is 203 items, for the meat profile – 391 items and 202 items, for equipment – 121 items and 99 items, respectively. This information testifies to a significant limitation of the regulatory framework of the dairy and meat industry. On the one hand, the reason for the inadequate state of standardization in these areas is the aforementioned cancellation of numerous GOSTs, developed before 1992, on the other hand, there is a crisis with the financing of works on national standardization. It becomes quite clear that the state will not finance the vast majority of works on national standardization in the future, as it has been until recently. Specialists of the Institute of Food Resources of the NAAS and TC 140 have the necessary experience and qualifications to carry out these works together with manufacturers of milk and meat products, other concerned parties. It should be recognized only the feasible participation of manufacturers and their professional associations in financing the development and updating of national standards can significantly help the cause. Another issue that is also awaiting its decision is the organization of work to update the already existing harmonized standards DSTU ISO, DSTU EN, etc. in accordance with the changes that are made to the original source standards by the respective bodies of the international standardization.

The issues of proper regulatory support for the production and operation of specialized technological equipment for food and processing industry enterprises also remain relevant. The existing system of standards with the specified scope of application requires updating and improvement, however, in fact, for years to come, it is out of sight of scientists and specialists, and this negatively affects the development of the domestic industry of the corresponding profile.

The reality is that, the main export products of Ukraine continue to be agricultural raw materials and products of a low degree of processing – accordingly, the main attention and most of the investments are directed to this sector, but investments in mechanical engineering are declining. On the other hand, sales in foreign markets of finished food products or food raw materials with high added value would significantly improve the financial position of processing

and food enterprises, and would make it possible to have the necessary funds for innovative renewal of applied technologies and specialized equipment. However, while there is a dominance of foreign specialized equipment at the Ukrainian enterprises – both high-tech machines and ones of medium and low complexity, the production of which has been mastered, or can be quite quickly mastered at enterprises of the domestic machine-building complex.

The analysis of the national base of standards of the nationwide force fully confirms the above. At the beginning of 2021, in general, according to the classification code 67.260 "Installations and equipment for the food industry", 99 normative documents were in force. In addition, 2 out of 6 current DSTU standards and all existing interstate GOST standards have become obsolete as they were developed in the mid-1990s. Two existing standards of the RST of the Ukrainian SSR are even more ancient, namely of 1980s. The overwhelming majority of European standards harmonized in Ukraine related to group 67.260 are standards, the scope of which is to establish safety and hygiene requirements in certain types of specialized technological equipment for the food industry. These harmonized DSTU EN standards were developed in pursuance of the Association Agreement between Ukraine and the EU [6], which provides for the provision of the relevant requirements of the Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery [26]. It is obvious that the nomenclature and structure of constituents of the system of normative documents in force in Ukraine on equipment for the food and processing industry requires careful study and rational improvement.

A number of measures can and should improve the state of standardization in the field of installations and equipment for the food industry, among which, first of all, research and analysis of the nomenclature and structure of the constituents of the system of normative documents in force in Ukraine on equipment for the food and processing industry, comparison of the state of standardization in the specified area in Ukraine and EU member states. It is necessary to carry out a comparative analysis of the DSTU and GOST standards in force in Ukraine on safety and hygiene of technological equipment in the food industry and the harmonized standards DSTU EN, which have a similar scope of application, to assess the possibility and feasibility of bringing these DSTU and GOST standards in accordance with harmonized standards DSTU EN. In this sense, a thorough study of the current state of the industrial engineering for the food and processing industry in Ukraine and other countries, the prospects for its development, etc. is necessary using the information received to draw up a comprehensive plan for the development of national standardization in this area. For the successful combination of the domestic traditions of the standardization of the requirements for specialized technological equipment, the priorities of safety and hygiene of machines, as well as ecology, in force in international practice, a study of the theory and practice of developing modern regulatory documents of the type of technical conditions and general technical conditions, the form and content of these documents, based on the need to add to their norms the requirements of international standards shall be fulfilled.

The above problems are characteristic for the technological equipment of the dairy and meat industry [27,28], as well as the for machines and appliances of the food industry in general. However, it can be hoped that the implementation of the above measures will promote the development of domestic food engineering on a modern high-tech basis, since the inconsistencies of the current state of the system of standards will be eliminated by the nationwide force in relation to specialized equipment for the food industry to the important role that the engineering industry should play in the case of mechanization of food production, achieving proper quality, safety and environmental friendliness of the specified equipment.

Conclusion. According to the currently adopted concept of standardization in Ukraine, standards, including the national standards of Ukraine DSTU, are voluntary – except for cases where references to standards are in the current regulatory legal acts. However, the national standards of Ukraine are the base of technical regulation in relation to food products, methods of their control, and the like. This also applies to standardization in the field of milk and meat products, which is within the competence of the Technical Committee for Standardization 140

"Milk, meat and products of their processing". The urgent tasks of standardization in the dairy and meat sector include, first of all, regulatory assurance of the safety and quality of milk and meat products, the observance of a dynamic balance between the interests of consumers and producers, which should be duly reflected in the standards being developed. The development and implementation of DSTU 3662:2018 "Raw cow's milk. Specifications", was of great importance, this introducing European standards for the quality of raw milk in Ukraine. Technical Committee 140 carries out a lot of work to develop new and update existing national standards in accordance with its area of competence, in particular, it has significant success in harmonizing international and European standards. An analysis of the harmonization of the national array of standards shows that its further advancement will require conceptual coordination of the domestic standards of specifications and general specifications with international standards, and, first of all, the requirements for food safety and methods of control of its parameters shall be normalized. Also relevant is the issue of attracting extra-budgetary funds for the harmonization of international standards and bringing funds of manufacturers and other operators of the food market in the entire range of work on standardization. The issues of proper regulatory support for the production and operation of specialized technological equipment for food and processing industry enterprises also remain relevant. The existing system of standards with the specified scope of application requires updating and improvement, but in fact for years it has been out of sight of scientists and specialists. In this sense, it is necessary to combine the domestic traditions of standardizing the requirements for specialized technological equipment with the priorities of safety and hygiene of machines, as well as ecology, with the international theory and practice of developing modern normative documents of the type of specifications and general specifications, the form and content of these documents, as following from the need to add to their norms the requirements of international standards.

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