

ISSN 2224-526X

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫНЫҢ

ҚАЗАҚ ҰЛТТЫҚ АГРАРЛЫҚ УНИВЕРСИТЕТИ

Х А Б А Р Л А Р Ы

ИЗВЕСТИЯ

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН

КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ
АГРАРНЫЙ УНИВЕРСИТЕТ

NEWS

OF THE NATIONAL ACADEMY OF SCIENCES
OF THE REPUBLIC OF KAZAKHSTAN

KAZAKH NATIONAL
AGRARIAN UNIVERSITY

АГРАРЛЫҚ ҒЫЛЫМДАР СЕРИЯСЫ



СЕРИЯ АГРАРНЫХ НАУК



SERIES OF AGRICULTURAL SCIENCES

2 (44)

НАУРЫЗ – СӘУІР 2018 ж.

МАРТ – АПРЕЛЬ 2018 г.

MARCH – APRIL 2018

2011 ЖЫЛДЫҢ ҚАҢТАР АЙЫНАН ШЫҒА БАСТАҒАН

ИЗДАЕТСЯ С ЯНВАРЯ 2011 ГОДА

PUBLISHED SINCE JANUARY 2011

ЖЫЛЫНА 6 РЕТ ШЫҒАДЫ

ВЫХОДИТ 6 РАЗ В ГОД

PUBLISHED 6 TIMES A YEAR

Б а с р е д а к т о р

Есполов Т.И.,

э.ғ.д, профессор,

ҚР ҰҒА академигі және вице-президенті

Р е д а к ц и я а л қ а с ы:

Байзақов С.Б., э.ғ.д, проф., ҚР ҰҒА академигі (бас редактордың орынбасары); **Тиреуов К.М.**, э.ғ.д, проф., ҚР ҰҒА академигі (бас редактордың орынбасары); **Елешев Р.Е.**, т.ғ.д., проф., ҚР ҰҒА академигі; **Рау А.Г.**, т.ғ.д., проф., ҚР ҰҒА академигі; **Иванов Н.П.**, в.ғ.д, проф., ҚР ҰҒА академигі; **Кешуов С.А.**, т.ғ.д., проф., ҚР ҰҒА академигі; **Мелдебеков А.**, а.ш.ғ.д., проф., ҚР ҰҒА академигі; **Чоманов У.Ч.**, т.ғ.д., проф., ҚР ҰҒА академигі; **Елюбаев С.З.**, а.ш.ғ.д., проф., ҚР ҰҒА академигі; **Садыкулов Т.**, а.ш.ғ.д., проф., академигі; **Баймұқанов Д.А.**, а.ш.ғ.д., проф., ҚР ҰҒА корр-мүшесі; **Сансызбай А.Р.**, а.ш.ғ.д., проф., ҚР ҰҒА корр-мүшесі; **Умбетаев И.**, а.ш.ғ.д., проф., ҚР ҰҒА академигі; **Оспанов С.Р.**, а.ш.ғ.д., проф., ҚР ҰҒА құрметті мүшесі; **Олейченко С.И.**, а.ш.ғ.д., проф.; **Кененбаев С.Б.**, а.ш.ғ.д., проф., ҚР ҰҒА корр-мүшесі; **Омбаев А.М.**, а.ш.ғ.д., проф. ҚР ҰҒА корр-мүшесі; **Молдашев А.Б.**, э.ғ.д., проф., ҚР ҰҒА құрметті мүшесі; **Сагитов А.О.**, б.ғ.д., ҚР ҰҒА академигі; **Сапаров А.С.**, а.ш.ғ.д., проф., ҚР АШҒА академигі; **Балгабаев Н.Н.**, а.ш.ғ.д., проф.; **Умирзаков С.И.**, т.ғ.д, проф.; **Султанов А.А.**, в.ғ.д., проф., ҚР АШҒА академигі; **Алимкулов Ж.С.**, т.ғ.д., проф., ҚР АШҒА академигі; **Сарсембаева Н.Б.**, в.ғ.д., проф.

Р е д а к ц и я к е ң е с і:

Fasler-Kan Elizaveta, Dr., University of asel Switzeland; **Koolmees Petrus Adrianus**, Prof. Dr., Utrecht University, The Netherlands; **Babadoost-Kondri Mohammad**, Prof., University of Illinois, USA; **Yus Aniza Binti Yusof**, Dr., University Putra, Malaysia; **Hesseln Hayley Fawn**, As. Prof., University of Saskatchewan, Canada; **Alex Morgounov**, Pr., International Maize and Wheat Improvement Center Turkey; **Андреш С.**, Молдова Республикасы ҰҒА академигі; **Гаврилюк Н.Н.**, Украина ҰҒА академигі; **Герасимович Л.С.**, Беларусь Республикасының ҰҒА академигі; **Мамедов Г.**, Азербайжан Республикасының ҰҒА академигі; **Шейко И.П.**, Беларусь Республикасының ҰҒА академигі; **Жалнин Э.В.**, т.ғ.д., проф., Ресей; **Боинчан Б.**, а.ш.ғ.д, проф., Молдова Республикасы; **Юлдашбаев Ю.А.**, а.ш.ғ.д, проф., РФА корр-мүшесі, Ресей.

Главный редактор

Есполов Т.И.,

доктор эконом. наук, проф.,
вице-президент и академик НАН РК

Редакционная коллегия:

Байзаков С.Б., доктор эконом. наук, проф., академик НАН РК (заместитель главного редактора); **Тиреуов К.М.**, доктор эконом. наук, проф., академик НАН РК (заместитель главного редактора); **Елешев Р.Е.**, доктор техн. наук, проф., академик НАН РК; **Рау А.Г.**, доктор техн. наук, проф., академик НАН РК; **Иванов Н.П.**, доктор ветеринар. наук, проф., академик НАН РК; **Кешуов С.А.**, доктор техн. наук, проф., академик НАН РК; **Мелдебеков А.**, доктор сельхоз. наук, проф., академик НАН РК; **Чоманов У.Ч.**, доктор техн. наук, проф., академик НАН РК; **Елюбаев С.З.**, доктор сельхоз. наук, проф., академик НАН РК; **Садыкулов Т.**, доктор сельхоз. наук, проф., академик НАН РК; **Баймуқанов Д.А.**, доктор сельхоз. наук, проф., член-корр. НАН РК; **Сансызбай А.Р.**, доктор сельхоз. наук, проф., член-корр. НАН РК; **Умбетаев И.**, доктор сельхоз. наук, проф., академик НАН РК; **Оспанов С.Р.**, доктор сельхоз. наук, проф., Почетный член НАН РК; **Олейченко С.И.**, доктор сельхоз. наук, проф.; **Кененбаев С.Б.**, доктор сельхоз. наук, проф., член-корр. НАН РК; **Омбаев А.М.**, доктор сельхоз. наук, проф. член-корр. НАН РК.; **Молдашев А.Б.**, доктор эконом. наук, проф., Почетный член НАН РК; **Сагитов А.О.**, доктор биол. наук, академик НАН РК; **Сапаров А.С.**, доктор сельхоз. наук, проф., академик АСХН РК; **Балгабаев Н.Н.**, доктор сельхоз. наук, проф.; **Умирзаков С.И.**, доктор техн. наук, проф.; **Султанов А.А.**, доктор ветеринар. наук, проф., академик АСХН РК; **Алимкулов Ж.С.**, доктор техн. наук, проф., академик АСХН РК; **Сарсембаева Н.Б.**, доктор ветеринар. наук, проф.

Редакционный совет:

Fasler-Kan Elizaveta, Dr., University of asel Switzeland; **Koolmees Petrus Adrianus**, Prof. Dr., Utrecht University, The Netherlands; **Babadoost-Kondri Mohammad**, Prof., University of Illinois, USA; **Yus Aniza Binti Yusof**, Dr., University Putra, Malaysia; **Hesseln Hayley Fawn**, As.Prof., University of Saskatchewan, Canada; **Alex Morgounov**, Pr., International Maize and Wheat Improvement Center Turkey; **Андреш С.**, академик НАН Республики Молдова; **Гаврилюк Н.Н.**, академик НАН Украины; **Герасимович Л.С.**, академик НАН Республики Беларусь; **Мамедов Г.**, академик НАН Республики Азербайджан; **Шейко И.П.**, академик НАН Республики Беларусь; **Жалнин Э.В.**, доктор техн. наук, проф., Россия; **Боинчан Б.**, доктор сельхоз. наук, проф., Республика Молдова; **Юлдашбаев Ю.А.**, доктор сельхоз. наук, проф., член-корр. РАН, Россия.

Известия Национальной академии наук Республики Казахстан. Серия аграрных наук.

ISSN 2224-526X

Собственник: ООО «Национальная академия наук Республики Казахстан» (г. Алматы)

Свидетельство о постановке на учет периодического печатного издания в Комитете информации и архивов Министерства культуры и информации Республики Казахстан № 10895-Ж, выданное 30.04.2010 г.

Периодичность 6 раз в год

Тираж: 300 экземпляров

Адрес редакции: 050010, г. Алматы, ул. Шевченко, 28, ком. 219-220, тел. 272-13-19, 272-13-18

<http://nauka-nanrk.kz/agricultural.kz>

© Национальная академия наук Республики Казахстан, 2018

Адрес типографии: ИП «Аруна», г. Алматы, ул. Муратбаева, 75

Chief Editor

Espolov T.I.,

Dr. economy. Sciences, prof.,
Vice President and academician of the NAS RK

Editorial Board:

Baizakov S.B., Dr. of economy sciences, prof., academician of NAS RK (deputy editor); **Tireuov K.M.**, Doctor of Economy Sciences., prof., academician of NAS RK (deputy editor); **Eleshev R.E.**, Dr. Of agricultural sciences, prof., academician of NAS RK; **Rau A.G.**, Dr. sciences, prof., academician of NAS RK; **Ivanov N.P.**, Dr. of veterinary sciences, prof., academician of NAS RK; **Keshuov S.A.**, Dr. sciences, prof., academician of NAS RK; **Meldebekov A.**, doctor of agricultural sciences, prof., academician of NAS RK; **Chomanov U.Ch.**, Dr. sciences, prof., academician of NAS RK; **Yelyubayev S.Z.**, Dr. of agricultural sciences, prof., academician of NAS RK; **Sadykulov T.**, Dr. Farm. Sciences, prof., academician of NAS RK; **Baimukanov D.A.**, doctor of agricultural sciences, prof., corresponding member NAS RK; **Sansyzbai A.R.**, doctor of agricultural sciences, prof., corresponding member NAS RK; **Umbetaev I.**, Dr. Farm. Sciences, prof., academician of NAS RK; **Ospanov S.R.**, Dr. agricultural sciences, prof., Honorary Member of NAS RK; **Oleychenko S.N.**, Dr. Of agricultural sciences, prof.; **Kenenbayev S.B.**, Dr. Agricultural sciences, prof., corresponding member NAS RK; **Ombayev A.M.**, Dr. Agricultural sciences, Prof. corresponding member NAS RK; **Moldashev A.B.**, Doctor of Economy sciences, prof., Honorary Member of NAS RK; **Sagitov A.O.**, Dr. biol. sciences, academician of NAS RK; **Saparov A.S.**, Doctor of agricultural sciences, prof., academician of NAS RK; **Balgabaev N.N.**, the doctor agricultural sciences, Prof.; **Umirzakov S.I.**, Dr. Sci. Sciences, Prof.; **Sultanov A.A.**, Dr. of veterinary sciences, prof., academician of the Academy of Agricultural Sciences of Kazakhstan; **Alimkulov J.C.**, Dr. of tekhncial sciences, prof., academician of the Academy of Agricultural sciences of Kazakhstan; **Sarsembayeva N.B.**, Dr. veterinary sciences, prof.

Editorial Board:

Fasler-Kan Elizaveta, Dr., University of Basel Switzzeland; **Koolmees Petrus Adrianus**, Prof. Dr., Utrecht University, The Netherlands; **Babadoost-Kondri Mohammad**, Prof., University of Illinois, USA; **Yus Aniza Binti Yusof**, Dr., University Putra, Malaysia; **Hesseln Hayley Fawn**, As. Prof., University of Saskatchewan, Canada; **Alex Morgounov**, candidate of agricultural sciences, International Maize and Wheat Improvement Center Turkey; **Andresh S.**, academician of NAS of Moldova; **Gavriluk N.N.**, academician of NAS of Ukraine; **Gerasimovich L.S.**, academician of NAS of Belorassia; **Mamadov G.**, academician of NAS of Azerbaijan; **Sheiko I.P.**, academician of NAS of Belorassia; **Zhalnin E.V.**, Dr. of technical sciences, professor, Russia, **Boinchan B.**, doctor of agricultural sciences, prof., Moldova; **Yuldashbayev Y.A.**, doctor of agricultural sciences, prof., corresponding member of RAS, Russia.

News of the National Academy of Sciences of the Republic of Kazakhstan. Series of Agrarian Sciences.

ISSN 2224-526X

Owner: RPA "National Academy of Sciences of the Republic of Kazakhstan" (Almaty)

The certificate of registration of a periodic printed publication in the Committee of Information and Archives of the Ministry of Culture and Information of the Republic of Kazakhstan N 10895-Ж, issued 30.04.2010

Periodicity: 6 times a year

Circulation: 300 copies

Editorial address: 28, Shevchenko str., of.219-220, Almaty, 050010, tel. 272-13-19, 272-13-18,
<http://nauka-nanrk.kz/> agricultural.kz

© National Academy of Sciences of the Republic of Kazakhstan, 2018

Address of printing house: ST "Aruna", 75, Muratbayev str, Almaty

NEWS

OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN

SERIES OF AGRICULTURAL SCIENCES

ISSN 2224-526X

Volume 2, Number 44 (2018), 31 – 36

UDC 658.562:663/664

K. K. Mukhamedzhanov

Kazakh National Agrarian University, Almaty, Kazakhstan.

E-mail: tuma80@mail.ru

EVALUATION OF THE PERFORMANCE OF THE HACCP APPROVAL SYSTEM OF HACCP QUALITY ASSESSMENT

Abstract. In a market economy, the quality problem is an important factor in raising living standards, economic, social and environmental security, in particular, issues related to the analysis of the effectiveness of production processes and finished products are important. In this paper, approaches are described in the analysis of processes and products in a single production of fermented milk products based on camel milk after the introduction of the quality assurance system of HACCP. As a result, the indicators of the effectiveness of the production process of sour-milk products were determined, the collection and analysis of the data obtained as a result of the testing of the finished product were carried out. The advantages of using the process approach are shown. A relationship between the ongoing production process and the workforce was found. The developed evaluation methodology and performance criteria for the introduction and operation of a quality management system can be applied to improve the quality of finished products.

Key words: HACCP, performance evaluation, quality assessment systems, software.

Introduction. At present, much attention is paid to the quality and safety of the products. In the conditions of market relations only the stable quality of the goods can attract the buyer and provide the enterprise with profit. An indisputable fact is that the consumer has the right to expect that the food they use is safe (harmless), suitable for eating and, importantly, they are the source of all the substances necessary for proper development [1, 2]. Diseases and disorders caused by food are at best unpleasant, at worst – deadly. Therefore, ensuring the safety and harmlessness of food is part of the policy, including in the field of protecting the population in the conditions of food crises [2-4, etc.].

Methods. The indicators of the effectiveness of the process of production of sour-milk products were determined by assessing the compliance of the measured data, as a result of the process, to the process data that was planned to be received, including by selected indicators:

- 1) implementation of the production plan for the development of finished products, the percentage of the fulfilled from the planned;
- 2) the quantity of finished products produced, the discrepancies in which were revealed before shipment to the consumer, the percentage of the output produced;
- 3) the amount of non-conforming products received as a result of production, the inconsistencies in which were identified by the consumer, the percentage of the output produced;
- 4) return of the main raw materials to the supplier based on the results of the incoming inspection, the percentage of the analyzed main raw materials;
- 5) the number of semi-finished products with inconsistencies in key technological processes, the percentage of completed volume.

Since the activities of enterprises are carried out on a commercial basis, the productivity directly depends on the applications of retail and wholesale trade networks, as well as on the possibilities of selling through branded stores. To minimize the influence of the quantity of products produced on the degree of the evaluation of the performance of the production process, the relative values in percentage terms were used as performance indicators [5].

Results. For the indirect assessment of the effectiveness of the quality system functioning at the enterprise and the efficiency of the production process, the data obtained as a result of testing the finished products of the selected assortment list were collected and analyzed. Tests were carried out during the first stage of work on the development and implementation of the system in the period from March to August 2012. Tests on physico-chemical and microbiological indicators were carried out by an accredited production laboratory. Tests on safety indicators were carried out by an accredited testing center.

In carrying out all studies, the rules of average samples were strictly observed, each sample was examined for the same index twice, with the calculation of the mean value.

In the process of diagnostic audit and research of finished products, it was established that the quality and safety control system has a number of weaknesses. First of all, this is the lack of regulated ways of collecting and transmitting information, which significantly reduces the effectiveness and effectiveness of the quality system as a whole. At the same time, there are a large number of separate elements of the system, covering the activities of individual structural units or individual chains of subprocesses. Most of these elements are effective enough in the first place with regard to identifying nonconforming products, and not preventing its production. Therefore, for the indirect assessment of the effectiveness of the finished product quality system functioning at the enterprise, the data characterizing the productivity of the production of the dairy products of the selected assortment list were collected and analyzed. Data were collected weekly for five months.

During the collection of information, the following observations were made: in most cases, inappropriate products identified before the completion of the process by order of the site master or replacement technologist were sent for processing within the production site or the direction of processing of such raw materials within the production process was changed; therefore, such rearrangements were not fixed in production reports as non-conforming products. For the purposes of the study, it was possible to calculate this index of inappropriate products obtained at various stages of the production process. As it was not possible to cut off the index at all production sites, we selected key technological operations in which the main raw materials undergo significant qualitative changes, in particular homogenization of the milk mixture, pasteurization, fermentation of the cream mixture. Accordingly, the quality and safety of the finished product depend more on these changes. From another point of view, these stages of the production process have a large number of controlled (including critical) parameters, which presumably involves a large number of negative deviations in the case of the imperfection of the control system or other weaknesses in the production process. The collected information is summarized and presented in table.

Discussion. The results showed that, on the whole, the results are sanitary in general, as none of the results of the studies gave a negative or borderline result, which allows to doubt the safety of the finished food products from a microbiological point of view [6]. However, production can improve the production process from a sanitary point of view, in consequence:

- significant differences in the value of the resulting outcomes (standard deviation comprise 14% of the mean signals)

- comparative increase in QMAFAnM by 25.4% in finished products compared to previous studies.

At the same time, the results of product research have a wide spread [7]. For example, standard deviations in the mass fraction of fat are from 3.15 to 3.25, while the value of the indicator itself does not exceed 1.4%.

In some samples of the finished product, an excess of the fat content was detected, since the production technology allowed the deviation of the mass fat percentage + 0.1% due to the fact that the fat content in camel milk varies in a fairly wide range, which depends on the species, season, forage, individual and other factors.

The finished product by the index of the mass fraction of the protein was similar to other indices, but the spread of the values is also wide (standard deviations from 0.98 to 1.01%). In addition, all the products examined had an acidity lower than the regulated normative document by an amount equal to 5% of the regulated one.

The results of the studies testify to the instability of qualitative characteristics in the implementation of the production process. Existing measures and a control system allow to effectively identify inconsistencies (including consumer characteristics of products) after they occurred in production. The

Average values of indicators by months from January to June 2012 and the overall average for a given period of time

Indicator name	Average values of indicators by months from January to June 2012 and the overall average for a given period of time					
	January	February	March	April	May	Average
<i>Indicator 1.</i> Execution of the production plan, %	90,3	90,32	90,3	90,3	90,29	90,3
	±1,14	±1,11	±1,14	±1,16	±1,14	±1,14
<i>Indicator 2.</i> The number of products, inconsistencies in which were identified before SEND to the consumer, %	0,51	0,53	0,53	0,49	0,48	0,5
	±0,05	±0,03	±0,05	±0,03	±0,06	±0,04
<i>Indicator 3.</i> The number of products, the discrepancies in which were identified by the CONSUMER,%	0,33	0,34	0,32	0,31	0,36	0,33
	±0,05	±0,03	±0,05	±0,03	±0,08	±0,05
<i>Indicator 4.1.</i> Number of incidents detected in the process Milk collection and sorting	10,03	10	10,04	10,03	10,02	10,02
	±3,16	±3,14	±3,17	±3,15	±3,19	±3,16
<i>Indicator 4.2.</i> Number of cases of non-compliance in the process	0,02	0,03	0,03	0,01	0,02	0,02
	±0,15	±0,02	±0,01	±0,01	±0,01	±0,04
<i>Indicator 4.3.</i> Number of incidents detected in the process Normalization	0,01	0,01	0,02	0,04	0,02	0,02
	±0,01	±0,01	±0,01	±0,02	±0,01	±0,01
<i>Indicator 4.4.</i> Number of incidents detected in the process Homogenization of the milk formula	0,03	0,01	0,04	0,05	0,03	0,03
	±0,02	±0,01	±0,02	±0,03	±0,01	±0,02
<i>Indicator 4.5.</i> Number of incidents detecting inconsistencies in the process Pasteurization	0,02	0,01	0,05	0,05	0,03	0,03
	±0,01	±0,01	±0,02	±0,02	±0,02	±0,02
<i>Indicator 4.6.</i> Number of cases of non-compliance in the process Fermentation and fermentation of the cream mixture	0,02	0,05	0,02	0,02	0,03	0,03
	±0,01	±0,01	±0,01	±0,01	±0,02	±0,01
<i>Indicator 4.7.</i> Number of incidents detected in the process Cooling and mixing.	0,02	0,01	0,02	0,04	0,01	0,02
	±0,01	±0,01	±0,01	±0,02	±0,01	±0,01
<i>Indicator 4.8.</i> Number of cases of identification of discrepancies in the process	0,04	0,06	0,07	0,07	0,04	0,06
	±0,02	±0,03	±0,02	±0,04	±0,02	±0,02
<i>Indicator 4.9.</i> Number of incidents detected in the process Pre-cooling and maturation	0,05	0,04	0,04	0,02	0,03	0,04
	±0,02	±0,03	±0,02	±0,01	±0,01	±0,02
<i>Indicator 4.10.</i> Number of incidents detected in the process Quality control of the finished product	0,09	0,07	0,07	0,11	0,12	0,09
	±0,02	±0,01	±0,04	±0,04	±0,03	±0,03
<i>Indicator 4.11.</i> Number of cases of non-compliance in the process Storage	0,07	0,04	0,04	0,09	0,1	0,07
	±0,04	±0,06	±0,02	±0,07	±0,03	±0,04

inconsistencies in the finished product revealed before the implementation reach 0.53%, the average value is 0.50 %. [8]

There are refunds and complaints from trading enterprises. Despite the fact that significant (critical) inconsistencies among such cases have not been identified, but the percentage of returns is 0.33% (data do not include returns due to the expiration of the expiration dates). The maximum amount of refunds was 0.5%.

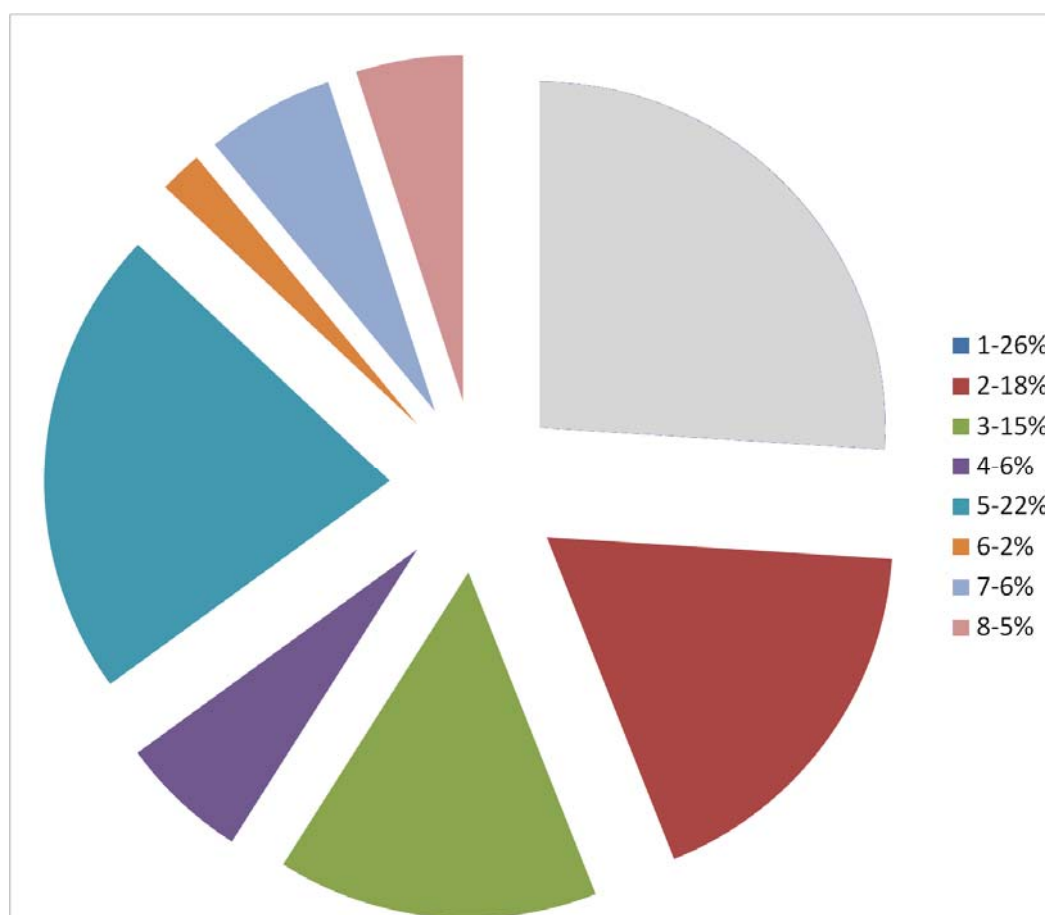
All deviations in the production process recorded at the time of collection of information entailed costs of various origins for the enterprise, including:

- The intrinsic value of nonconforming products or semi-finished products by the technological process;
- Loss of profit due to lack of sales of this product;
- the cost of excessive production time;

– in the case of product disposal – the cost of disposal;
– reimbursement of damages for claims, consideration of complaints, transportation of returned products, etc.

These costs were not allocated as additional, which led to an unjustified rise in the cost of the entire production process, which adversely affected the formation of the cost of production, and, ultimately, its competitiveness. An analysis of the nature of the inconsistencies and the reasons for their occurrence in most cases amounted to incriminating and punishing the perpetrators, this circumstance did not in any way stimulate the prevention of similar inconsistencies in the future by identifying them at the early stages of the process [9].

We have attempted to identify the patterns of distribution of the value of non-conforming products, depending on the causes of the inconsistencies. For inconsistencies in terms of indicators: "the volume of products, the discrepancies in which were revealed before the mandrel to the consumer" and "the volume of inconsistencies in the stages of the production process", the causes of their occurrence were found and analyzed [11]. The analysis data are shown in figure.



The emergence of inconsistencies, depending on the reasons:

- (1) Negligence or lack of knowledge of working personnel;
- (2) Staff turnover (inadequate production experience);
- (3) Non-observance of parameters and modes of production;
- (4) Insufficient technical equipment;
- (5) Raw materials, ingredients, auxiliary materials that are not appropriate to quality or not subjected to extended control;
- (6) Absence or delay in transmission of necessary information, including changes in the technological process;
- (7) Inconsistency of actions;
- (8) Unexplained reasons

Conclusion. Thus, the following conclusions can be drawn from the analyzed data:

- 1) There is no coherent and comprehensive quality management system for finished products.

- 2) The data indicate that there are no violations for the safety of the finished product.
- 3) There is a need to improve the production [12] process from a sanitary point of view (by regulating the Good Manufacturing Practices (GMP) programs).
- 4) The instability of the quality indicators of the finished product may be due to the lack of data analysis and the instability of individual operations and stages of the ongoing process, insufficient input data for effective correction of the technological process.

The lack of a system for identifying raw materials, materials, and finished products during the advancement of the production process and the imperfection of the monitoring and traceability system, including the collection of information on emerging inconsistencies, are established [13, 14]. Thus, the technological process was carried out by the working personnel according to the planned chain of actions with a number of different inconsistencies that were not fully analyzed and were limitedly prevented subsequently.

The application of the process approach in the formation of the flowchart allowed to maximally specify the production process, as well as to establish a more flexible regulatory system that establishes not stringent conditions for the implementation of certain actions, but the level of responsibility in making decisions and ways of informing in case of deviations from planned results [15, 16]. Thus, the response in the event of any inconsistencies will be more rapid (since in some cases the decision will be made by the masters directly on the sites) and more substantive, as the areas of competence of the individual structural divisions of the enterprise are divided [17, 18].

Dependence of the ongoing production process on the personnel (44% of the non-compliance was realized through the fault of the staff), assumes that the main directions of the transformations in the development and implementation of the system will be the regulation of areas of responsibility, documentation and monitoring of key (critical) operations and multi- including on the control of dangerous factors [19, 20].

REFERENCES

- [1] Report of a WHO Consultation (World Health Organization) In collaboration with the Ministry of Health, Welfare and Sports Strategies for Implementing HACCP in Small and/or Less Developed Business. The Netherlands The Hague, 16-19 June 2010.
- [2] Regulation (EC) No 852/2009 of the European Parliament and of the Council of 29 April 2009 on the hygiene of foodstuffs.
- [3] Technical regulations of the Customs Union "On food safety" (TR TS-021-2011).
- [4] The Law of the Republic of Kazakhstan "On Food Safety" (with amendments and additions as of December 29, 2014).
- [5] Standart organizatsii ST TOO 39476196-01-2008. Bioshubat iz verblyuzh'ego moloka / Serikbaeva A.D. Almaty, 2008. 10 p.
- [6] Standart organizatsii ST TOO 39476196-02-2008. Pasterizovannoe verblyuzh'e moloko / Serikbaeva A.D. Almaty, 2008. 10 p.
- [7] Standart organizatsii ST TOO 39476196-03-2008. Shubat uluchshennyj / Serikbaeva A.D. Almaty, 2008. 10 p.
- [8] Belaya kniga po bezopasnosti pitaniya. Komissiya Evropejskogo Soobshhestva. // Ofitsial'noe izdanie. Bryussel', 12 yanvarya 2007.
- [9] DS 3027 E, 2012. Managment of food safety based on HACCP (Hazard Analysis and Critical Control Point) – Requirement for management system for food production organizations and their suppliers// Standard of Denmark.
- [10] The secondary food law of Great Britain, Enactment about Food Safety, 12/06/1995, № 1763.
- [11] TK RK 4.2-MR-14-2002. Upravleniye kachestvom pishchevykh produktov na osnove printsipov NASSR. Metodicheskiye rekomendatsii po sboru i obrabotke iskhodnoy informatsii o produktsii i proizvodstve // Ofitsialnoye izdaniye.
- [12] Perechen osnovnykh deystvuyushchikh normativnykh dokumentov po metodam kontrolya khimicheskikh veshchestv v obyektakh okruzhayushchey sredy, vozdukhke rabochey zony, pishchevykh produktakh. M.: Federalnyy sentr Gossanepidnadzora Minzdrava Rossii. Departament Gossanepidnadzora Minzdrava Rossii, 2008. 19 p.
- [13] SanPiN 2.3.2.1078-01. Gigiyenicheskiye trebovaniya bezopasnosti i pishchevoy tsennosti pishchevykh produktov // Ofitsialnoye izdaniye. Minzdrav.
- [14] Bolton M. Vovlecheniye sotrudnikov kompanii v povysheniye kachestva // Evropeyskoye kachestvo: dayzhdost. 2008. N 4. P. 50-54.
- [15] Musayev A.A., Nikitin V.A. Otsenivaniye kachestva upravleniye protsessami na osnove mnogomernogo statisticheskogo kontrolya // Standarty i kachestva. 2007. N 12. P. 38-45.
- [16] Kharakteristika mikrobiologicheskikh pokazateley bezopasnosti prodovolstvennogo syria i produktov pitaniya // Informatsionnyy sbornik statisticheskikh i analiticheskikh materialov. M., 2004. 17 p.
- [17] Chernukha I.M., Makarenkova G.Yu. Aspekty razrabotki i vnedreniya sistemy obespecheniya bezopasnosti i upravleniya kachestvom pishchevoy produktsii na osnove printsipov KhASSP na predpriyatiyakh molochnoy promyshlennosti Kazakhstana // Molochnyye tekhnologii. 2007. V pechati.

[18] Chernukha I.M., Makarenkova G.Yu. Zatraty na kachestvo: ubyток ili pribyl? // Khraneniye i pererabotka selkhozsyria. 2012. N 6. P. 14-16.

[19] Kodeks Alimentarius. Sistemy kontrolya i sertifikatsii importa i eksporta pishchevykh produktov. Obyedinennyye teksty. FAO/V03. 2011. 36 s.

[20] Kurian A.G., Serenkov P.S. Opisanіye protsessov v ramkakh sistemy menedzhmenta kachestva na osnove metodologii funktsionalnogo modelirovaniya IDEF0. Minsk, 2010. 8 p.

К. Х. Мухамеджанов

Қазақ ұлттық аграрлық университеті, Алматы, Қазақстан

НАССР САПА БАҒАЛАУДЫҢ ҚОЛДАНЫЛУ ЖҮЙЕСІНІҢ ОРЫНДАУЫН БАҒАЛАУ

Аннотация. Экономикалық, әлеуметтік және экологиялық қауіпсіздіктің, өндірістің және өндірістегі өңдеу үрдістерінің нәтижелерін талдау және негізгі мәселелерді көтеру нарықтағы маңызды фактор болып табылады. Зерттеулер мен технологиялық үрдістерді анализдеу барысында сүтті өңдеу арқылы сүтқышқылды өнімдердің ассортиментін шығаратын өндірісіне негізделген. Өндірістің қауіпсіздігін қамтамасыз ете отырып, сапалы өнімдер шығарылады.

Нәтижесінде, сүт қышқылды өнімдерін өндіру үрдісінің талапқа сай дұрыс жүрмеуі анықталады. Өндіріс үрдісінің әрбір процесстерінің жұмыс істеу режимжері технологияға сай дұрыс қолданылуын қадағалау. Өндіріс үрдісімені мен жұмыс істейтін персоналдың арасындағы өзара іс-қимылдың бірліктігі. Құрылжабдықтар, әдістемелік нұсқауды бағалау мен сапасын басқару жүйесінің функционалды басқару мүмкіндіктерінің үйлестігі қарастырылады.

Түйін сөздер: НАССР, өнімділікті бағалау, сапаны бағалау жүйесі, бағдарламалық қамтамасыз ету.

К. Х. Мухамеджанов

Казахский национальный аграрный университет, Алматы, Казахстан

ОЦЕНКА РЕЗУЛЬТАТИВНОСТИ ДЕЙСТВУЮЩЕЙ СИСТЕМЫ ОЦЕНКИ КАЧЕСТВА ХАССР

Аннотация. В рыночной экономике проблема качества является важнейшим фактором повышения уровня жизни, экономической, социальной и экологической безопасности, в частности, важны вопросы, связанные с анализом результативности производственных процессов и готовой продукции. В данной работе описаны подходы в анализе процессов и продукции на отдельно взятом производстве кисломолочных изделий на основе верблюжьего молока после внедрения системы обеспечения качества НАССР. В результате были определены показатели результативности процесса производства кисломолочных изделий, произведен сбор и проделан анализ данных, полученных в результате испытаний готовой продукции. Показаны преимущества применения процессного подхода. Найдена зависимость между осуществляемым производственным процессом и рабочим персоналом. Разработанная методика оценки и критерии результативности внедрения и функционирования системы управления качеством могут быть применены для улучшения качества готовой продукции.

Ключевые слова: НАССР, оценка результативности, системы оценки качества, программное обеспечение.

Publication Ethics and Publication Malpractice in the journals of the National Academy of Sciences of the Republic of Kazakhstan

For information on Ethics in publishing and Ethical guidelines for journal publication see <http://www.elsevier.com/publishingethics> and <http://www.elsevier.com/journal-authors/ethics>.

Submission of an article to the National Academy of Sciences of the Republic of Kazakhstan implies that the described work has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis or as an electronic preprint, see <http://www.elsevier.com/postingpolicy>), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. In particular, translations into English of papers already published in another language are not accepted.

No other forms of scientific misconduct are allowed, such as plagiarism, falsification, fraudulent data, incorrect interpretation of other works, incorrect citations, etc. The National Academy of Sciences of the Republic of Kazakhstan follows the Code of Conduct of the Committee on Publication Ethics (COPE), and follows the COPE Flowcharts for Resolving Cases of Suspected Misconduct (http://publicationethics.org/files/u2/New_Code.pdf). To verify originality, your article may be checked by the Cross Check originality detection service <http://www.elsevier.com/editors/plagdetect>.

The authors are obliged to participate in peer review process and be ready to provide corrections, clarifications, retractions and apologies when needed. All authors of a paper should have significantly contributed to the research.

The reviewers should provide objective judgments and should point out relevant published works which are not yet cited. Reviewed articles should be treated confidentially. The reviewers will be chosen in such a way that there is no conflict of interests with respect to the research, the authors and/or the research funders.

The editors have complete responsibility and authority to reject or accept a paper, and they will only accept a paper when reasonably certain. They will preserve anonymity of reviewers and promote publication of corrections, clarifications, retractions and apologies when needed. The acceptance of a paper automatically implies the copyright transfer to the National Academy of Sciences of the Republic of Kazakhstan.

The Editorial Board of the National Academy of Sciences of the Republic of Kazakhstan will monitor and safeguard publishing ethics.

Правила оформления статьи для публикации в журнале смотреть на сайте:

[www:nauka-nanrk.kz](http://www.nauka-nanrk.kz)

<http://agricultural.kz/>

Редактор *М. С. Ахметова, Т. М. Апендиев, Д. С. Аленов*
Верстка на компьютере *Д. Н. Калкабековой*

Подписано в печать 19.03.2018.
Формат 60x881/8. Бумага офсетная. Печать – ризограф.
6,0 п.л. Тираж 300. Заказ 2.