



**KAPRALYUK**

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**SCIENTIFIC CONTRIBUTION AV.A. KALANTAR (1859–1937)  
IN THE DEVELOPMENT  
OF CATTLE BREEDING AND MILK PRODUCTION**

*Analysis contribution famous scientist Av.A. Kalantar in learning production, physical and chemist composition of milk different dairy cattle depend on feeding, maintenance, condition of environment. Point out, that scientist engaged in research of technology of milk products, definition and improvement quality. Showing important role Av.A. Kalantar in creation high-qualification specialists in milk affair.*

*Проаналізовано внесок відомого вченого з зоотехнії Ав.А. Калантара у вивчення молочної продуктивності великої рогатої худоби, фізико-хімічного складу молока різних молочних порід великої рогатої худоби залежно від годівлі, утримання, умов зовнішнього середовища та ін. Розкривається доробок вченого з питань, пов'язаних з дослідженням технології виробництва молочних продуктів та визначення їхньої якості. Показано важливу роль Ав.А. Калантара у підготовці кваліфікованих кадрів у молочній справі.*

*Проанализирован вклад известного ученого Ав. А. Калантара в изучение продуктивности, физико-химического состава молока разных молочных пород крупного рогатого скота в зависимости от кормления, содержания, условий внешней среды и др. Раскрывается вклад ученого у вопросах связанных с исследованиями технологии производства молочных продуктов и определения их качества. Показано важную роль Ав. А. Калантара по созданию квалифицированных кадров в молочном деле.*

In his work "Development of capitalism in Russia", V.I. Lenin said, that beginning of production of the butter and cheeses in Russia date from the end XVII century. In the 1860 landowner's production of cheeses were in crisis. Certainly, that

in such situation, it was not conditions for the development of scientific and research works and it began only in 1883, when near the Edimonovskoy school of milk management open first laboratory, organize by Av. A. Kalantar.

**Purpose of research** – show science contribution Av. A. Kalantara in development of cattle breeding and milk production.

Many famous names scientists of our native animal science preserve pages history of agricultural, among them Av. A. Kalantar hold special place

Av. A. Kalantar was born in 1859 y. in Verhni Akulisu Erevanskoi province of Armenia. Secondary education got in Bakinskom specialized school, high – in Petrovsko-Rozumovsky Academy. Do practice training in dairy farm Edimonovski milk school under rule outstanding specialist in milk production – N.V. Vereshchagina. Scientists consider him "father and creature of our dairy industry".

Being on third course of Academy, he under rule professor G.G. Gustavson made first scientific work on subject: "Chemical analysis some cheeses" (1881).

By this first work author made improving in methodic research of cheeses. He said about necessity change of methodic preparation samples to the investigation: "Cheeses, cut in to squares, heavy give out water and fat". Besides, it is difficult from squares make homogeneous mass, because their composition are different. That is why by top of knife I made from cheeses friable mass".

Comparing investigation of two methods showed, that insertion changes in methodic preparation of samples are right, because give opportunity get precisely results. Recommended Av. A. Kalantarom method preparation of samples cheeses to the research was approval and preserve to now [2, c. 73–85; 9, c. 4–17].

Graduated high educational school in 1882 and passionate for milk industry, Av. A. Kalantar take invitation to work by manager in Edimonovski school. Soon for his initiative was organized first in country milk laboratory.

First researches, carried out in laboratory, interested N.V. Vereshchagina so much that he decided to extend it, and send manager abroad to acquaint with milk industry there.

Young specialist, considering travel prematurely, refused from it and go on scientist and research work, at the same time began insert elements of theory in teaching definite disciplines.

In first year of work Av. A. Kalantara display his ability consolidation science and practice. "Theory, – he wrote, – this is logical conclusion, obtain under systematize dates of life and scientific research" [5, c. 23].

In plane of laboratory he outline series vital questions, which have great significance for development of milk production, namely: comparing productivities different milk breeds, chemical compounds and milk's property of home dairy cattle, influence fodder supply and feeding on the quality of milk, butter and cheeses, control quality of milk and other.

Being yet young specialist, Av. A. Kalantar understood that without theory and scientific base can not development milk industry.

Researches, made in laboratory give opportunity Av. A. Kalantaru in 1886 published report of the laboratory for 1884–1886 years. It includes results of works and table with more than 12000 analysis of milk cow, which delivery on the plant of school. Table represented results daily analysis of compounds dairy cattle edimonovskogo herd of cows. It was first attempt of precision represent of compounds of milk and his value for production of butter and cheeses.

In this period it was made first trial in Russia work from determination of the size fat balls of cow's milk. For these was investigated milk of tverskih and yaroslavsky cows. This work became basis of his thesis, which was represented by Av. A. Kalantaram in Petrovska agricultural Academy for obtain degree candidate of agricultural sciences in 1884.

Carrying out permanent scientific and research works in branch of chemistry, technology and dairy cattle Av. A. Kalantar made Edimonivsku laboratory famous.

Education, erudition and knowledge of agricultural production enable scientist consider questions of the development dairy cattle in connection with milk industry, pedigree stock-breeding and fodder supply. Besides all researches he finished analysis of economical efficiency and expediency of practical recommendations.

In 1886 Av. A. Kalantar could reorganized Edimonivsku school into experimental station.

In result fulfilment scientific and research works employers of Edimonivskoy laboratory definite number of value quality of native dairy cattle. That is why, Av. A. Kalantar consider that necessary to carry out research into chemical compounds of milk the best russia dairy cattle Yaroslavskogo, Vologodskogo and Holmogorskogo districts. With this aim by experimental station was prepare enough number of instructors which have secondary education. They must drive round all indicated districts and investigate composition of milk. For them was constructed small mobile laboratories with necessity devices, reagents and scales. Information collecting such laboratories and researches carry out in Edimonivsku experimental station, allowed scientist made report on VIII congress of the natural scientists, doctors and agronomists in Peterburg in 1889 on subject: "Composition of milk, as principle improving dairy cattle", which evoke great interest.

Scientist said, that in Western Europe culture dairy cattle breeding began many years ago. Of course, that under one-sided selection dairy cattle on milk production , people were not able create breeds, which give many milk, but liquid. As result created such cattle breed, as Dutch, whose milk so liquid that some sorts of cheeses could not made of it [3, c. 24–44; 4, c. 11–21].

In finish his report Av. A. Kalantar proposed appeal attention listeners on dairy cattle, which breed in native land, improving and carry out selection must russian owners. He said that careless attitude to the animals and work give great results [3, c. 24–44].

His expression about composition of milk have something in common with tasks raise fat in milk of our dairy cattle, which have before animal scientists.

The scientist was know his job, namely dairy cattle. He very appreciate native breeds and during all his life learning them, rule and carry out research into dairy cattle of Mocowskoy, Ryazanscoy, Cherepoveckoy, Altayskoy, Permskoy, Vyatskoy. Kostromskoy, Tverskoy and other provinces. In 1927 year Av. A. Kalantar wrote article: "Fate of russia dairy cattle", where he again said about nice qualities of native

breeds and indicated ways of their improving. He was not supporter foreign and think, that russia animal science and practice must go by his way. He assert, that for the improving breeds one necessary to choose such method of breeding that to preserve value qualities local dairy cattle. Scientist yet in the end of XIX century consider the best method improving of local dairy breeds – back crossing, and also breeding in herself the best native dairy cattle.

Mesures, which necessary to carry out for improving of local cattle, Av.A. Kalantar special place allot to creature fodder supply, precisely sowing of grass and root crops, pedigree work, making pedigree book, couple station and consolidation of rural people in trade union for selling products, conversion milk into milk products. He thought that without consolidation of rural people can not be development animal husbandry and raising his culture.

A lot number of researches and comprehensive learning of dairy cattle of all zone country gave push Av.A. Kalantaru opportunity to write interesting work: "Nature of complexion animal and theory of pigmentation". In this work scientist unite his observations, which he did during expeditions from learning dairy cattle relatively changes pigmentation of animal depending on temperature factor. He wrote, that many people thing that white color of animal this is protection from heat, and dark – the wrong way. According to the physics know that white color reflect rays of sun and dark – absorb. It is justly, in opinion of Av. A. Kalantara for buildings and also not living objects. For animal in North, where sun and warm are not enough very important to adapt organism and body not only to the absorb warmly from outside but and to preserve and economical spend of inside energy. It is clearly, that white coat color will be more prevent to the giving back of warm. Consequently, white color protect animal in the North from cold.

Scientist affirm that "In north countries and mountains animal with white color must be more productive than one have dark coat color. White or with predominance white spots cows, goats must be more productive, than animal with dark color. White rams, rabbits, hens must fattening better, than one of dark coat color [7, c. 12–15].

For confirmation his theoretical principles scientist not only gathered great materials in the years of expedition researches, but and conduct experiment in Peterburg using black and white hens. It was establish next dates: severe north climate of Peterburga better endure and give more egg production white hens than black one [1, c. 73–85].

Great service of Av.A. Kalantara was in ability protect and prove high quality of russia milk products in Europe. For instance, in 1901 year in London by chemist was announce 3 examples of russia butter, which arrive in London are falsify by margarine. For investigation and protection in English court this affair of russia butter in England was command Av.A. Kalantar. In result of this battle the affair in English court was won.

Let's mention, that to this process were involved not only chemists of England, but and professors and chemists of Dutch and Danish (Richmond, Allen. Luin, Torp and other).

This process had great meaning for production of russia butter not only that it avoid damage to loss export but and that became obviously necessity extension of scientist and research work into this branch.

It is difficult overestimate contribution Av.A. Kalantara in development of consolidation in milk industry and agricultural education. From beginning of his activities he supported organize of union and co-operative society. Scientist many times emphasized, that without creation such organizations russia villagers shall not be able to come out of poor [6, c. 12–15].

In 1903 year at the congress of scientists of milk industry in Omsk, which held under ruler Av.A. Kalantara, took decision about creation of co-operate society in Siberia. These co-operate societies soon obtained wide spreading and only in 5 years in Siberia had more than 1600 co-operatives, which played great role in raise of production butter in Russia.

Milk industry which development by fast paces, bring up requires to the specialists and Av.A. Kalantar set task about more wide organization prepare of specialists and increasing their qualification. He played important role in prepare of

high quality specialists for milk industry. Being main specialist in production and conversation of milk in Department of agriculture, scientist help to open high educational establish and herself did general ruling of them. Soon were organized milk schools in different provinces of Russia, them became more and more and in 1914 year their number was 24.

More than 20 years ago Av.A. Kalantar tried to organize special Institute of milk production for prepare specialists of high qualification and for the science and research works in milk industry. Only in 1911 he obtain permission for opening Institute of milk production in Vologdi. Institute was consist of courses, where could study persons who finished agriculture institutes or students of last years studying. The term of studying was 2 years.

Important role Av.A. Kalantar played in propagation and scientific popularization of milk production. Being master of it, he every year gave lections from milk production in State agricultural museum in Peterburg and Stebutivskih agricultural courses. Besides, he published his articles, answer to the questions and give advices to the rural owners of dairy cattle on the page of magazines.

Scientist many years conduct as publisher such and editor, magazines: "Crop-growing", "Owner", "Milk industry", Library of landowner", "Our food", and other.

Av.A. Kalantar attach great significance to the popularization of achievements of advanced farms and exchange by experienced. With this aim he organized excursions as inside country such and abroad – in countries of development animal husbandry (Danish, Swedish and other) and personally ruled by the excursions of agronomists and zootechnician. He was organized only abroad 15 excursions with more then 300 participants.

From 1919 to the 1922 Av.A. Kalantar gave courses on organize milk cattle herd and technology of production milk in Vologodskom Institute, and also rule by chair of milk production in Timiryazivska agricultural Academy.

He was one of organizer of All-Union agricultural and industry exhibitions in Moscow in 1923. For his initiative was gathered and represented many breeds of dairy cattle.

Had arrival Av.A. Kalantara to the Armenian had great role in learning of scientists and development science and research work from milk industry in native land. A chair of milk industry opening at Erevanskogo zooveterinary institute. Scientist could gathered around herself young specialists, who graduated at that time Vologodskiy institute of production milk.

In 1932 for initiative of Av.A. Kalantara and under his rule in Erevan opened Armenian's branch Of All-Union science and research milk industry, where Av.A. Kalantar made science researches.

Scientist invented measuring devices: lactometer, devices for determination falsify of milk, technology settling of fat balls in milk, portable laboratory, centrifugal device, thermometer for definition of temperature body of animal and other [8, c. 3–9].

In this way, professor Av.A. Kalantar in his scientific and practice works spare many times and attention to improving of native dairy cattle. Under his rule was organized exhibitions of dairy cattle: in Peterburg, Vologdi, Tagile and Moscow. In his opinion, for improving cattle there are two ways: first – measures from improving of production animals (assorting, selection, feeding and cattle management). For increasing of percent fat in milk necessity use crossing or pure-breeding of animals. Scientist spare many attention to the questions of technology and quality cheeses, popularization of new ways and methods in production of milk products. He investigated not only technology aspects of production cheeses but and factors which influence on the quality of product. Among it main role hold dairy cattle, cattle management, feeding of cows, cleaning of milk. From moment graduated of Petrovskoy Academy and to the old age Av.A. Kalantar was permanent connected with educational establishments, which prepare workers for the milk industry. After finishing Academy he worked by teacher and manager of scientific part of Edimonovskoy school, next years – Stebutivskih women agricultural courses, Vologodskom institute, Moscow agricultural academy named after K.A. Timiryazeva and, finally in Erevanskogo zooveterinary institute.



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