

THEORETICAL AND METHODOLOGICAL ASPECTS OF THE AGRICULTURAL ECONOMICS FIELD AND ITS ROOTS: A HISTORICAL PERSPECTIVE OF THE MAJOR INFLUENCE IN 19TH CENTURY

ASPECTOS TEÓRICOS E METODOLÓGICOS DO CAMPO DA ECONOMIA AGRÍCOLA E DAS SUAS RAÍZES: UMA PERSPECTIVA HISTÓRICA DA INFLUÊNCIA NO SÉCULO XIX

ASPECTOS TEÓRICOS Y METODOLÓGICOS DEL CAMPO DE LA ECONOMÍA AGRÍCOLA Y SUS RAÍZES: UNA PERSPECTIVA HISTÓRICA DE LA ENORME INFLUENCIA EN EL SIGLO XIX



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ABSTRACT: This article analyzes historical aspect of the formation and development of agricultural economy in the second half of the nineteenth century. The aim of the study is to disclosure and clarification of the fundamental theoretical and methodological foundations of agricultural economy as a science in the research of the founding scientists of one of the leading foreign institutions of higher education. The experiment took place during 2020–2022 on the basis of the scientific of the National Scientific Agricultural Library of the National Academy of Agrarian Sciences and Oleksandr Dovzhenko Hlukhiv National Pedagogical University. The methodology of scientific research is based on the use of a set of methods, each of which has its own purpose and function. A theoretical and methodological model of the formation of agricultural economics as a science at the end of the 19th century has been developed at the higher agrarian and economic school of the Petrovsky Academy.

KEYWORDS: Agricultural economy. Science. Academy. Development.

RESUMO: *Este artigo analisa a formação e desenvolvimento da economia agrícola na segunda metade do século XIX. no aspecto histórico. O objetivo do estudo é a divulgação e o esclarecimento dos fundamentos teóricos e metodológicos da economia agrícola como ciência na investigação dos cientistas fundadores de uma das principais instituições estrangeiras de ensino superior. A experiência ocorreu durante o período de 2020-2022. A investigação foi fundamentada nas bases científicas da Biblioteca Nacional Científica Agrícola da Academia Nacional de Ciências Agrárias e da Universidade Nacional Pedagógica Oleksandr Dovzhenko Hlukhiv. A metodologia da investigação científica baseia-se na utilização de um conjunto de métodos, cada um dos quais tem o seu próprio objetivo e função. Um modelo teórico e metodológico da formação da economia agrícola como ciência no final do século XIX foi desenvolvido na escola superior de agronomia e economia da Academia Petrovsky.*

PALAVRAS-CHAVE: *Economia agrícola. Ciência. Academia. Desenvolvimento.*

RESUMEN: *Este artículo analiza la formación y el desarrollo de la economía agrícola en la segunda mitad del siglo XIX. El objetivo del estudio es la difusión y aclaración de los fundamentos teóricos y metodológicos fundamentales de la economía agrícola como ciencia en la investigación de los científicos fundadores de una de las principales instituciones extranjeras de educación superior. El experimento tuvo lugar durante el período 2020-2022. La investigación se llevó a cabo sobre la base de las bases científicas de la Biblioteca Nacional de Ciencias Científicas Agrícolas de la Academia Nacional de Ciencias Agrícolas y la Universidad Pedagógica Nacional Oleksandr Dovzhenko Hlukhiv. La metodología de la investigación científica se basa en el uso de un conjunto de métodos, cada uno de los cuales tiene su propio objetivo y función. Un modelo teórico y metodológico de la formación de la economía agraria como ciencia a finales del siglo XIX ha sido en la Escuela Superior Agraria y Económica de la Academia Petrovski.*

PALABRAS CLAVE: *Economía agrícola. Ciencia. Academia. Desarrollo.*

Introdução

The formation of agricultural economics as a field of investigation was based on the introduction of higher economic education in the field of agriculture in the second half of the 19th century. The study of this issue in this paper is connected to the scientific heritage of the founders of agricultural economics at and it followed the functioning of leading foreign and domestic educational institutions of the 19th century. One of the founders of this theoretical and economic agrarian field is the head of the department of agricultural economics in the year of 19th century namely Ludogovski from Petrovsk Agricultural Academy, left behind a distinguish scientific-methodical and practical work in the field of agricultural economics, as can be learned from Neruchev (1869), Ludogovski (1875) and Shishkin (1888).

The investigation of certain aspects of this first issue can be found in Vergunov (2018) and Garkavko (2018), besides: Bautin *et al.* (2006), Gataulin (2013) and Kuznetsov (2018). However, the study of precisely defined issues leaves gaps. Accordingly, the highlighted topic needs further and deeper disclosure in the national history of science and technology in order to clearly define and systematize the historically important facts of the formation of agricultural economics as a science from the point of view of the functioning of the educational field in the second half of the 19th century.

As stated in the work «Petrivka» by Vergunov (2018) against the background of the ambiguous perception of the Ukrainian question by the Russian intelligentsia at the time, the Petrovsk Agricultural Academy acted as an almost ideal educational institution, where Ukrainophiles felt comfortable, engaged in solving the problems of the economic revival of Ukrainian lands. In agreement of the National Academy of Agricultural Sciences, the Petrovsk Academy - a domestic agrarian science, was one of the educational institutions responsible for the agricultural economics.

Shishihin (1908) contributed to the theoretical and economic field, named the agricultural economics, which was directly related to agronomy and political economy. It reached its highest development in such countries as Germany, France, Belgium, England, Austria-Hungary, Russia. In these countries agricultural fields was studied first in agricultural schools, and then in higher educational institutions (BAUTIN *et al.*, 2006).

The main task and goal of the activity of the Petrovsk Academy (founded on 21/11/1865) was the formation of the scientific foundations of effective agricultural management of that period. This is evidenced by leading representatives of the institution Shishkin and Fadeev in the form of the summarized conclusions made on the study of the

foreign experience of educational organizations in this field. Scientists emphasized: «Petrovsk Academy should be a higher scientific specialized institution, not just a professional school» (COMMISSION..., 1884, p. 26–29). This statement was also confirmed by the first paragraph of the «Regulations on the Petrovsk Agricultural Academy and the staff of this educational institution», in particular: «Petrovsk Academy is a higher educational institution, which aims to train scientifically and practically educated agricultural workers» (KUZNETSOV, 2018, p. 120). Accordingly, in parallel with the disciplines of the agronomic direction, great attention was paid to the area of economic knowledge.

In addition, as noted in 1870 by the director of the academy Korolev in his report, one of the main special subjects at the Petrovsk Academy was precisely agricultural economy. The ultimate goal of studies at the Petrovsk Academy was considered to be providing students with thorough knowledge in this field in order to make the profitability of the farm directly dependent on the level of education of the owners and employees (MIGUNOV, 2017).

It is customary to mark the creation of the Department of Agricultural Economics at the Petrovsk Academy with the appointment of its first head in May 1869, the provincial agronomist. In addition, since 1868, he has been in charge of an educational farm. His scientific and pedagogical activity at the academy was combined with voluminous journalistic activity in newspapers and magazines, namely «Russian Chronicle» and «Russian Agriculture». Neruchev (1869) collaborated in the newspaper «Russian Chronicle» together with Shchepkin. The latter was the first head of the Department of Political Economy. It should be noted that it was these scientists who started teaching the agricultural economy course at this educational institution. Also, Neruchev (1869) was involved in the scientific journal «Russian Agriculture», in which he combined activities with Stebut and Ludogovsky.

During a rather short period (February 1870 – May 1896) of staying in the walls of the Petrovsk Academy, Neruchev (1869) made a fundamental contribution to the development of the agricultural economy. Among his published studies, we single out such important scientific works as «Rent Theory and Agricultural Practice», «Review of Agricultural Economy», etc.). In particular, we specified a number of important questions raised in them by the researcher regarding the need for educational and scientific training in agricultural educational institutions for the organization of effective management of agricultural production.

Therefore, the current stage of development of our society demands strategic tasks of preparation of highly-qualified professionals, which will allow our state to become one of the world leaders in agricultural production and food. That is why education and science play a

priority role in agricultural reform and other sectors of the economy, as well as integrate countries to world structures, and through this, the study of evolution of the strategy of education and science acquires an actual theoretical and practical importance. Education and science are considered as challenges in modern context, and that is caused by deeply rooted worldviews transformational processes. These processes were originated by the multiple global crisis that requires the search and development of a fundamentally new worldview paradigm as a methodological basis for geocultural subjects.

In the modern conditions of Ukrainian society, education is called upon bring society to a qualitatively new economic, political and cultural level of development. Hence, we reaffirm the special responsibility of the higher school for the training of specialists, who must possess high moral qualities. So, the process of teaching agricultural professional disciplines must to be focused not only on the assimilation of knowledge in this area, but also on development of personal qualities. Without a high level of knowledge, higher education agricultural institutions are not capable to perform their professional duties at the level of modern requirements of this social practice.

Materials and methods

The aim of the study is to disclosure and to clarify the fundamental theoretical and methodological foundations of agricultural economy as a science in the research of the founding scientists of one of the leading foreign institutions of higher education, namely Petrovsk Agricultural Academy during the second half of the XIX century (1869–1894).

The experiment took place during 2020–2022. The research was carried out on the basis of the scientific of the National Scientific Agricultural Library of the National Academy of Agrarian Sciences and the institution of higher education of the Oleksandr Dovzhenko Hlukhiv National Pedagogical University.

The research program included: preliminary observation of object of research; theoretical definition and practical creation of conditions; determination of statistical reliability and criterion dependence of results research; mathematical processing of the obtained actual results. The basis of the experimental program was the experimental technique, which covered the purpose, tasks of the experiment, selection of variable factors, justification means of measurement, description of the experiment process itself, generalization of the obtained results of the experiment. Experimental work was carried out in accordance with the goal set to each

of the research stages. After conducting theoretical studies, it became necessary to experimentally confirm the significance of the obtained research results.

The methodology of scientific research is based on the use of a set of methods, each of which has its own purpose and function:

- *a combination of historical and logical analysis* – identifying with the help of archival sources and specific historical facts the conditions in which the agrarian economic thought of Ukraine developed and the worldview of agrarian economist scientists was formed);

- *abstraction and concretization* – highlighting essential properties and signs, forming a general idea about the subject of research;

- *analysis and synthesis* – a study of the conditions and features of the development of agricultural economic thought in Ukraine in the second half of the 19th and the first half of the 20th centuries, as well as the factors that influenced the formation of this scientific opinion of individual scientists;

- *analogies* – grouping of agrarian economist scientists into directions and determination of affiliation to currents based on the similarity of their views;

- *comparative method* – the conditions of development of agricultural economic thought and views of different thinkers and scientists;

- *system analysis* – the study of economic science of the second half of the 19th – the first half of the 20th century as a complete system taking into account its features, factors that influenced its art, renewal and development;

- *economic-statistical method* – the study of the economic situation of Ukrainian lands and its consequences for the development of the agrarian sphere and, accordingly, the formation of the interdependence of the formation of agrarian economic thought.

Within the defined period, the essential characteristics, elements, conditions and functions of agricultural economy are highlighted in the context of the scientific and pedagogical activity of the economist scientists, the founders of this science of this institution.

The fundamental scientific works of the heads of the department of agricultural economics of the Petrovsky Academy (1869–1894) and the importance of their research in the field of agriculture and their influence on the solution of important agricultural and economic problems are analyzed. It is proved that the formation and development of agricultural economics as a theoretical and economic science at the end of the 19th century connected with the thorough scientific, methodical and practical work of the leading agrarian-economist

scientists (NERUCHEV, 1869; LUDOGOVSКИ, 1875; SHISHKIN, 1888) of the Petrovsk Agricultural Academy.

In this study, archival historical materials of the Fund of 19th-century editions of the National Scientific Agricultural Library of the National Academy of Agrarian Sciences of Sciences and historical publications in the field of history and economics of the Hall of Rare Editions of the Oleksandr Dovzhenko Hlukhiv National Pedagogical University (NERUCHEV, 1869; LUDOGOVSКИ, 1875; SHISHKIN, 1888).

Results and discussion

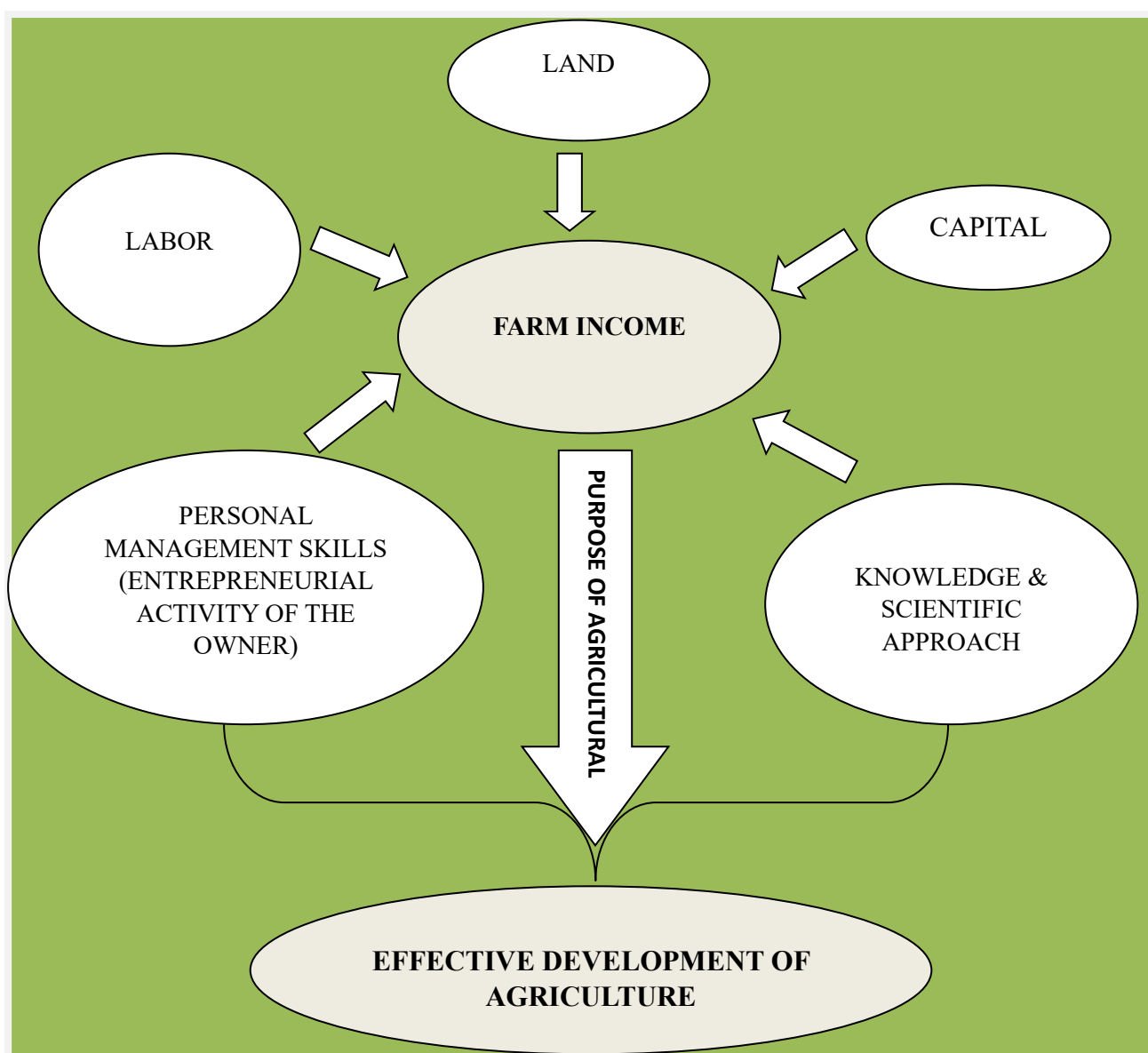
As a result of the research and analysis of the scientific and practical activities of Neruchev (1869) during his work at the Petrovsk Academy, we have structured the theoretical and methodological principles of agricultural economy formed by him (Fig. 1). According to Neruchev (1869), the necessary factors for the formation of growing farm income are: land, labor, capital, the owner's personal ability to manage the economy and the availability of relevant knowledge. Accordingly, we consider the main goal of agricultural economics to be the effective development of agriculture in the synthesis of entrepreneurial activity and scientific foundations. These statements and studies served as a basis for further researchers of this issue in the agrarian field, as well as for successors in the academy.

As stated in the studies of Kuznetsov (2018), in connection with the newly available vacant position of the head of the Department of Agricultural Economics, Stebut invited Ludogovsky to the role of head. He was a scientist-practitioner with foreign experience, who was able to lay the fundamental theoretical foundations of agriculture for students when studying this subject and, by his own example, to provide the necessary practical skills. This fact was confirmed by the candidate for the post having a master's degree in agriculture. In May 1870 Ludogovsky was elected by the Council of the Academy as an extraordinary professor and head of the Department of Agricultural Economics (13 votes – in favor and 3 – against) (KUZNETSOV, 2018).

For the development of a more detailed course on agricultural economy, Ludogovsky (1871) was tasked by the academy with improving his own level of acquired practical experience in farming. For this reason, the new head of the department was sent on a two-month summer business trip to the best local peasant farms (until September 1870) at the expense of the Ministry of State Property in accordance with the order of Minister Zeleniy.

As a result of this trip, in September 1870, for the first time, scientists developed a complete clear course of this academic discipline. It later served as a basis for the work of agricultural economist scientists of both the academy and other foreign and domestic educational institutions. It consisted of a theoretical and practical part and was based on the study of three components of agricultural economy, namely: studying the conditions and forms of agricultural production, simple and double bookkeeping, organization of control, familiarization and acquisition of practical experience in the organization of farms. The subject was taught in the third, and then after the revision of the curricula from 1872 – in the fourth course of study at the academy.

Figura 1 – Princípios teóricos e metodológicos da economia agrícola

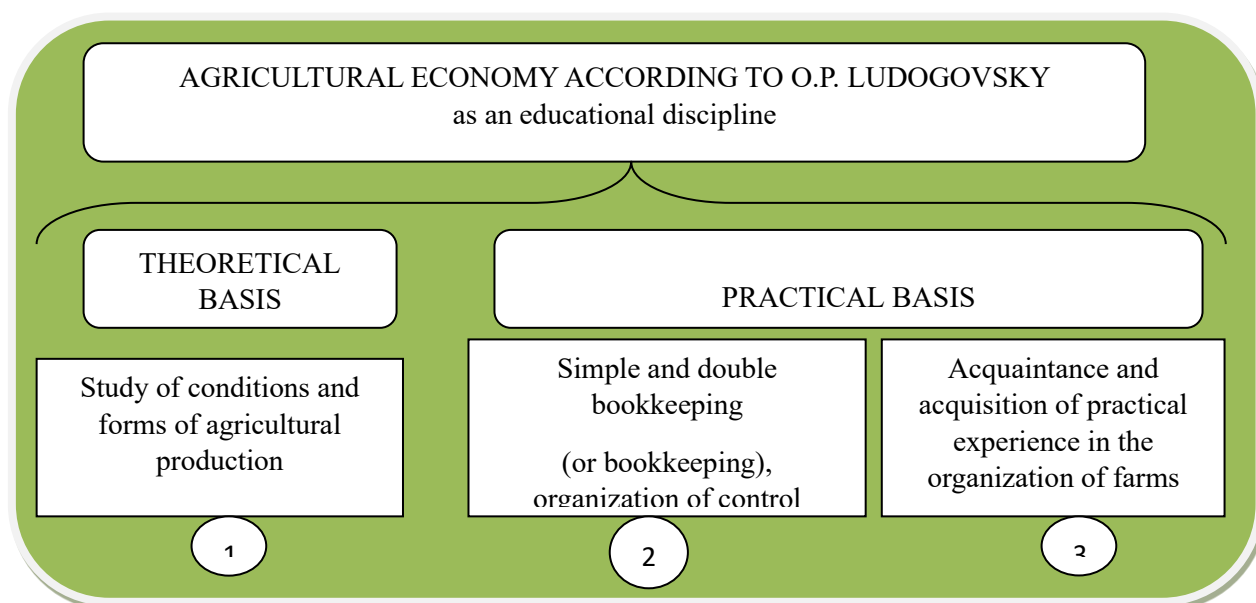


Fonte: Neruchev (1869)

We note that the newest approach of Ludogovsky (1875) in the study of the specified question was expressed in his interpretation of agricultural economy as an educational discipline precisely on the theoretical and practical basis of its study. Accordingly, on the basis of the included archival and published materials, we formed a structural and logical scheme of this approach, which allows us to specify certain aspects (Figure 2). We believe that this fact emphasizes the significance of this scientist through the prism of his scientific and pedagogical activities in the field of agricultural economics.

In addition, another innovative aspect in the study of agricultural economy as a science was the initiation by this agrarian-economist at the Petrovsk Academy of practical training among students, as a mandatory condition for the formation of the necessary knowledge and skills. Since 1872, the practice of students in landlord estates was introduced, thanks to Ludogovsky. Upon its completion, it was necessary to submit a detailed report on the state of the farm and a detailed description of ways to improve it in order to increase the economic effect of the activity.

Figure 2 – Agricultural economics as an educational discipline



Source: Ludogovsky (1875)

Ludogovsky (1875) is considered the «father» of agricultural economics as a science, whose teachings were based on the fundamental works of Thayer (1830). The German scientist considered the effectiveness of agriculture through symbiosis with technical support, natural sciences and economics. His scientific work «On English Agriculture» (1782) reflected the

statements that served as the basis for the formation of an agricultural economics scientific ideas of Ludogovsky (THAYER, 1830).

Ludogovsky (1875), while teaching agricultural economics, devoted great attention to the preparation of scientific literature. In 1874, together with other authors (LUDOGOVSKEY *et al.*, 1876), the «Table Book for Russian Farmers» was created. This work was the result of a 10-month foreign mission of the scientist to Austria and Germany for the purpose of studying scientific principles and their effective application in agricultural management. However, this edition was harshly criticized due to suspicion of plagiarism regarding the seventh edition of the German professor Steckhardt «Der angehende Pächter» (1859) (AGRICULTURE AND FORESTRY, 1875). Although the last fact was later denied.

Despite the negative controversy regarding the expediency of using this scientific work in the management of domestic agriculture, we will emphasize its importance and significance. This book was really «tabletop» in the process of activity of progressive landowners and teachers of agricultural educational institutions. At that time, it was the only scientific work among the agricultural literature, in which the basic principles of conducting agriculture and its branches based on foreign experience were first described in such detail and in full.

In the process of working on the study of agricultural economics as a science, Ludogovsky created a number of important works. Of particular importance are the «Liebych's law of return and the rational method of determining the size of fertilizers» (1871), «To the doctrine of agricultural systems» (1872), «Fundamentals of agricultural economy and agricultural accounting. Management experience for practical owners, agricultural and real schools and help with the classes of students of higher educational institutions» (1875) etc. (LUDOGOVSKEY, 1875). We believe that these scientific developments have become a certain transition to a qualitatively new level of Ludogovsky (1875) as a researcher and served to form him as a scientist in the economic field of agriculture.

«Fundamentals of agricultural economy and agricultural accounting Management experience for practical owners, agricultural and real schools and help with the classes of students of higher educational institutions» deserves special attention and thorough study, as a fundamental scientific work in the field of agricultural economics. In it, Ludogovsky (1875) considers the agricultural economy from the angle of interaction of two types of factors at the same time: geographical and economic. The scientist attributes natural and historical factors to geographical influence, namely soil depletion by culture. To economic influence, he refers to the ratio of rent, wages, product prices (LUDOGOVSKEY, 1875).

We share the opinion of modern historians regarding the uniqueness of this study. We emphasize that even if scientists had not done anything except writing this scientific work, Ludogovsky would be among the most prominent agrarian economists of his time (BAUTIN *et al.*, 2006). Chayanov (1927) gave the highest assessment to this work. He marked it as the main Russian-language publication for studying both the economy of agriculture and the organization of farming. He also pointed out the value of the conducted research in generalizing the domestic scientific experience and the experience of Western Europe in the field of agriculture economics science and management of the farm (CHAYANOV, 1927).

Summarizing the thorough scientific statements of Ludogovsky (1875), we can state his following main achievements in the field of agricultural economy, which also served as a «standard» for his successors, namely:

- the essence of an economically justified optimum of costs was formed;
- the importance of maximizing not the gross income, but the net income from farming had been proven;
- a formula for the formation of gross income was proposed, in which rent (payment for land), payment for labor, capital, intellectual human abilities («entrepreneurial intelligence») were introduced;
- definitions of the concepts of intensive and extensive farming are provided;
- the «Law of Profitability» was formed on the basis of agronomic research on the use of mineral fertilizers to increase the yield;
- characterized aspects of existing competition as a necessary condition for running an efficient economy;
- the theory of agricultural systems was formed as a result of the development of two natural-historical and economic factors (the transition from one system to another occurs primarily due to a change in the value ratio of production factors).

Thus, a comprehensive analysis of the historiographical works of Ludogovsky (1875), allowed us to:

- specify the content of the definition of «agricultural economics» as a field of knowledge dealing with the study of agriculture as economic production;
- single out the purpose of studying agricultural economics, which consists in forming an understanding of the meaning of conditions (local and temporal) by farm owners when choosing forms of agricultural production and the process of optimizing production costs to obtain the maximum possible net profit;
- clarify the essence of agriculture through the prism of economic production, in which the determining factors are land, labor and capital, which are combined to obtain a higher and net income on a permanent basis.

Due to illness in October 1876 Ludogovsky is leaving the post of head of the Department of Agricultural Economics. The performance of these duties was initially offered to Shishkin (1888), but he did not agree. Therefore, the teaching of this discipline according to Ludogovsky program was assigned to Markovskiy, the manager of the farm of the Petrovsk Academy at that time (KUZNETSOV, 2018).

Already in November 1876, a competition was announced to fill the vacant position of the head of the Department of Agricultural Economics. On 20/11/1876 at the suggestion of professors Tymiryazev and Shene, the members of the Academy Council (12 votes in favor, out of 14 present) elected the above-mentioned Shishkin as associate professor of the department (1847–1899) (KUZNETSOV, 2018). In the past, he was a graduate of the Petrovsk Academy, and at the time he was a teacher of the department of agriculture and agricultural accounting at the Novo-Alexandria Institute of Agriculture and Forestry.

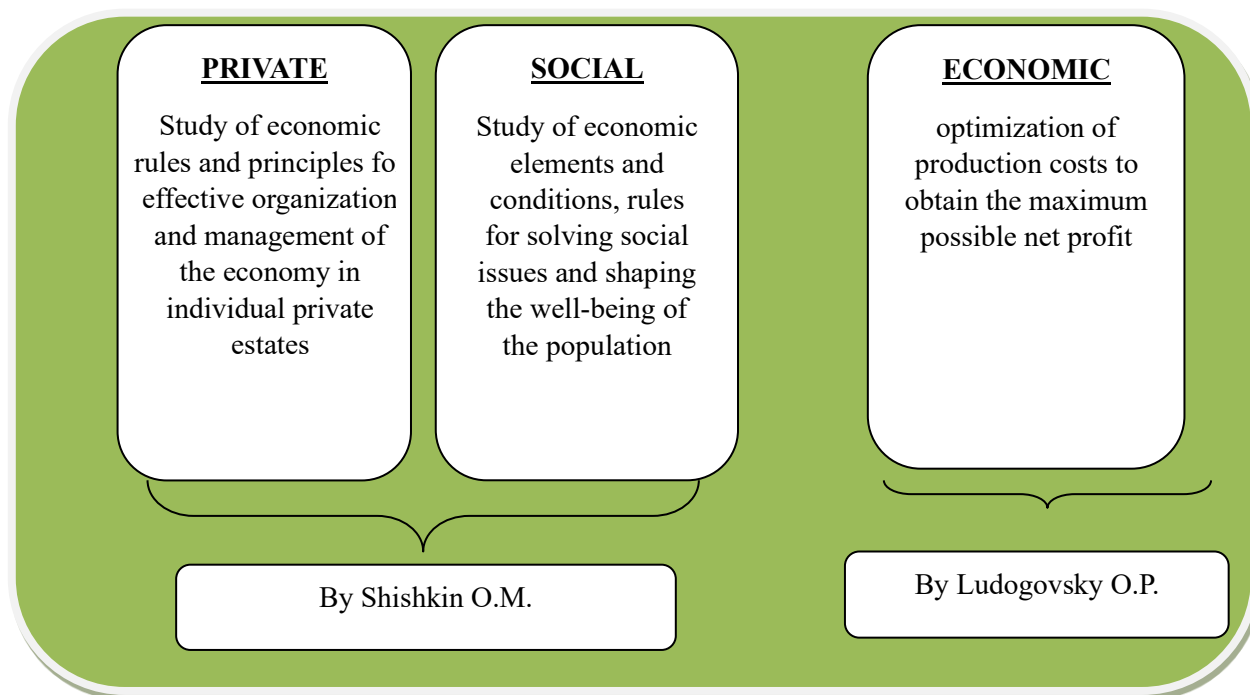
On 25/09/1877 for the first time at the Petrovsk Academy, defense of his master's thesis on the topic «On the question of reducing the harmful effects of drought on vegetation» took place. The result of this was the election of the scientist as an extraordinary professor, and later, in 1881, as a resident professor of the academy.

Teaching the course of agricultural economy began in January 1877 and continued until October 1893 (SHISHKIN, 1908). He remained on the post until 1894, that is, until the actual closure of the Petrovsk Agricultural Academy.

In his scientific and pedagogical activities, in addition to his own practical research, he relied on the work of his predecessor (LUDOGOVSKEY, 1871). Although he criticized certain

of his achievements. We specified and compared the main statements of these scientists regarding the essence of agricultural economics as a science (according to Figure 3). The private goal of the agrarian economy was to study economic rules and principles for the effective organization and management of the economy in individual private estates. The social goal was based on the study of economic elements and conditions, rules for solving social issues and shaping the well-being of the population. This goal of the studied science was later transformed into a political and economic one, in connection with the development of agrarian and economic events of that time.

Figure 3 – Goals of the agricultural economy



Source: Ludogovsky (1875) and Shishkin (1908)

Confirmation of the disclosure of the issue of private goals of agricultural production can be found in the scientific work of SHISHKIN (1908) «Introduction to the course of agricultural economy». It indicates the fact of non-coincidence with social goals regarding well-being. In connection with this statement, scientists pointed out the need for state influence on individual subjects of economic activity. In «Essays of the Volga Region in Agricultural Relations» (1882), the head of the department raised the question of the interdependence of effective agricultural management and the availability of knowledge and a scientific basis at the same time. It was noted that «the work of the cheapest employee who does not understand the simple truth can cost the owner too much» (FORTUNATOV, 1899; p. 913).

So, we see that already at that time, in the works of Shishkin (1888) traced the line of scientific direction of the organization of the economy. We define its essence in the need to study and inseparability of social sciences, including agricultural economics, with agronomic sciences, in order to achieve a successful result.

It is necessary to note the active scientific and practical work of Shishkin (1888) during the period of his scientific and pedagogical activity. From November 1877, he began working as an assistant editor of the magazine «Bulletin of the Petrovsk Agricultural and Forestry Academy», where he also published his own research in the field of agricultural economics (SHADRINA *et al.*, 2019). In 1896, he was elected an honorary member of the Moscow Society of Agriculture. He took an active part in various agricultural congresses, where he gave thorough reports.

As a result of his scientific and successful pedagogical activity, Shishkin (1888) created a number of fundamental works in the field of agricultural economics. His research and scientific works («Introduction to the course of agricultural economics» (1879), «Essay on the history of the development of agricultural science and practice in this century» (1888), «Agricultural economy» (1894–1895), were in great demand among a wide range of users – from simple farm owners to economists and government officials.

We assert that Shishkin (1908) was one of the first agricultural economists who pointed out in his scientific works precisely the so-called «national» character of the agricultural economy. In the two-volume textbook for secondary schools «Agricultural Economy» (1894–1895), Shishkin (1888) indicated that the guidance for agricultural economics should be inherent only to the existing social and natural-historical conditions that exist at the present time and in this country. In addition, this textbook created by him is considered one of the first domestic in the field of agrarian economics.

We believe that this statement of «national dedication» was formed by the scientist on the basis of the provided critical assessment of the work of Ludogovsky (1875) «Fundamentals of agricultural economy and agricultural accounting. Management experience for practical farmers, agricultural and real schools and assistance in the studies of students of higher educational institutions» (1875). It was expressed in the inappropriateness of the application of foreign scientific and practical experience in the organization of agricultural economy, to the conditions and circumstances of the Russian lands at that time.

Having studied this scientific work, we also highlight an innovative aspect in the agricultural economy with primary signs of entrepreneurial activity. At the same time, we emphasize the application of an individual approach, rather than a template, and the use of the personal «art» of the owner, to the process of running a farm under certain conditions in order to achieve success (SHISHKIN, 1908).

In addition, we note that Shishkin (1888) is a scientist who first proposed a new name for agricultural economy. In his work «Essay on the history of the development of agricultural science and practice in this century» (1888), he defined the subject under study as «agricultural economy» (SHISHKIN, 1888). He considered it not simply as a science of organizing the management of a separate economy, but expanded its functional purpose precisely in the social aspect when solving important political issues in the agrarian and economic sphere.

It is necessary to give credit to Shishkin (1888) in training and influencing the formation of his students and followers as leading scientists in the field of agricultural economics. Among them, we highlight such prominent figures as Fortunatov (1899) and others. He directed them to study and research not only agricultural economics and statistics, but also related principles of financial and state law (SHISHKIN, 1888).

We affirm that over the years of his active research activities, he predicted the further development of agricultural science (SHISHKIN, 1888). It was the need for independent formation of not only agricultural statistics and relevant legislation, but also geography and history in this field. Let us recall that in the fall of 1887, at the suggestion of this scientist, agricultural legislation was allocated as a separate discipline in the academy taught by Myklashevskiy (SHISHKIN, 1888).

An important place in the education system is given to higher education. At the same time, the very fact of the existence of the institute of higher education does not mean solving the problem of achieving maximum positive – individual and social effects of higher education. The market system of relations is intrinsically pragmatic, and at its core is higher education.

Therefore, it must provide functional suitability of future specialists in various fields activity. In this context, Ukraine's desire to make a leap in economic development of the state and become competitive in world should be embodied in ensuring effective changes in tandem «higher education – professional skills».

It is worth noting that in the Ukrainian state policies in the field of education, in addition to integration with the labor market, among the foundations and of the principles of educational activity is clearly visible in the socio-humanistic orientation: people-centeredness; humanism; unity training, education and development; education of patriotism, respect for cultural values of the Ukrainian people, their historical cultural heritage and traditions; formation of respect for rights and human freedoms, intolerance to humiliation of his honor and dignity, physical or mental violence, as well as to discrimination for by any signs; formation of civic culture and culture of democracy; formation of a healthy lifestyle culture, ecological culture and caring attitude to the environment, etc.

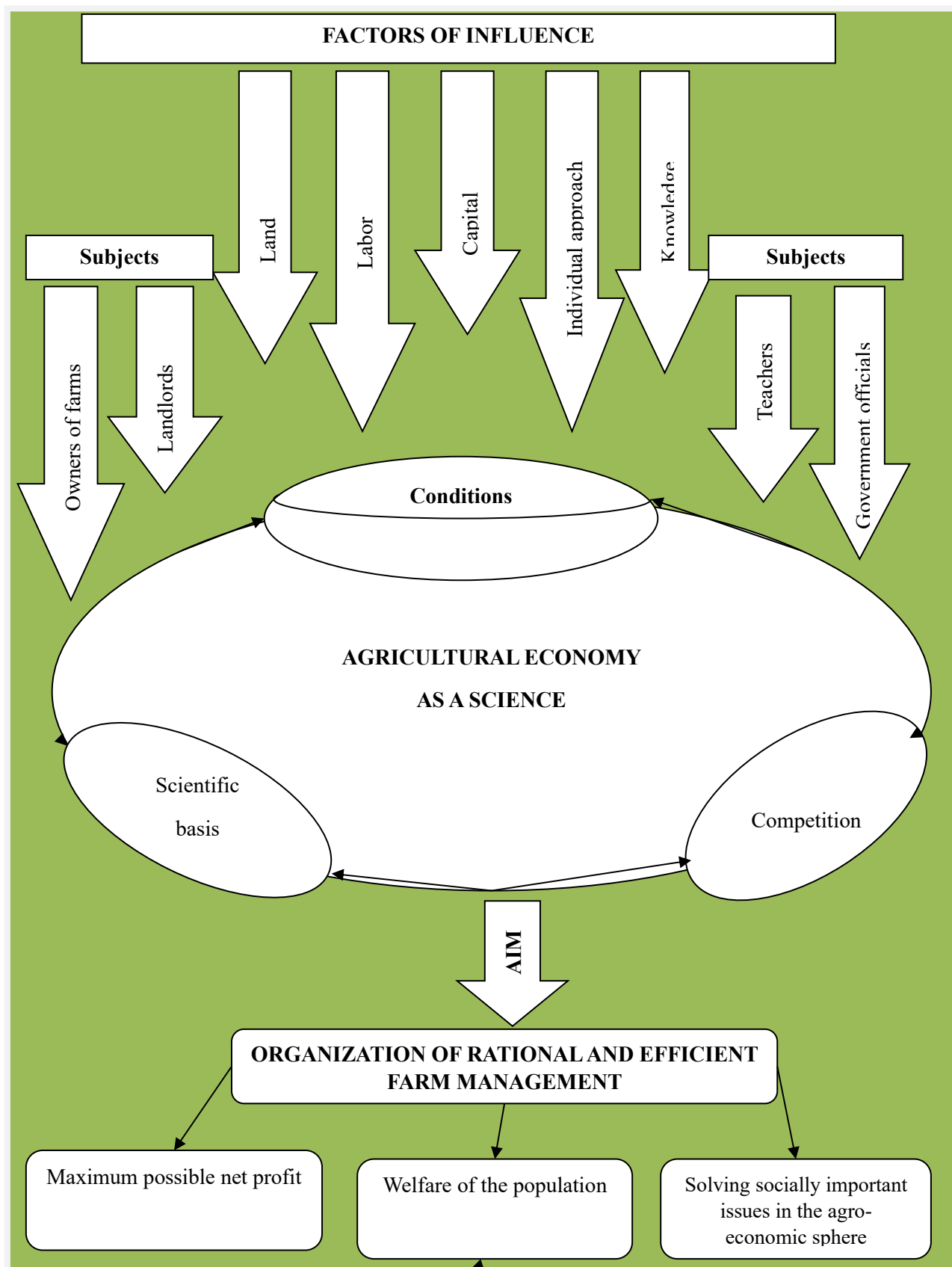
Conclusions

After analysis of the content and essence of scientific works in the field of agricultural economics, we were able to generalize and summarize the following fundamental statements developed by the scientist in this scientific field (SHISHKIN, 1908). A separate important social function of this science was singled out, which was later transformed into a political and economic one, in connection with the development of agrarian and economic events of that time. The range of subjects for the study of the rules, principles, elements and conditions of the agricultural economy had been expanded (from owners and landowners to officials and civil servants) in order to effectively solve important political issues in the agrarian and economic sphere. The theory of interdependence was formed as a mandatory element in the study of the economic science of agriculture and the conditions and circumstances (temporal and spatial) inherent in this particular territory. A scientific and methodical textbook was created with a thorough detailed description of the main provisions of the agricultural economy based on the presented experience of the activities of domestic farms and estates (in contrast to «Fundamentals of Agricultural Economy» by Ludogovsky (1875). The so-called «swot-analysis» of the essence of large and small farms was carried out, highlighting an important mission for small farms (so-called «family farms»). Such a feature of the classification of farm forms as «personal contribution of the owner» was substantiated, because the scientist did not consider the area of land to be the main indicator for determining the size of the farm.

A scientific analysis of the formation of the agricultural economy as a science is impossible without studying its historical path in the system of agrarian education for a certain period of time. Therefore, conducting a relevant study is impossible without studying the historical aspect of the functioning of the Petrovsk Academy as one of the first in the system of higher education institutions among the founding institutions of the agrarian economy. This is confirmed by the important results of the scientific and practical research activities of the founders of the doctrine of agricultural economy in the period of the end of the XIX century. As evidenced by works of heads of the relevant department (NERUCHEV 1869; LUDOGOVSKEY, 1875; SHISHKIN 1888) (Figure 4).

One of the conclusions of the leading analytical studies and systematization of scientific facts shows that the research of these scientists were mainly based on the study of foreign experience in agriculture. Already then, it was brought to the state and conditions inherent in domestic farms, which was the main drawback of their scientific and methodological work. But, regardless of the existing negative sign, thanks to the first thorough research of Neruchev (1869), Ludogovsky (1875) and Shishkin (1888), a significant development of agriculture economics science took place among a wide range of subjects with the aim of effectively solving important political, scientific and educational issues in the agrarian and economic sphere.

Figure 4 – Theoretical and methodological model of formation of agricultural economy as a science



Fonte: Prepared by the authors

Accordingly, to achieve the goal of the article, we developed a theoretical and methodological model of the formation of agricultural economics as a science of the end of the XIX century at the higher agricultural and economic school of the Petrovsk Academy (Figure 4). This model allows us to reveal the fundamental theoretical and methodological foundations of this science through the prism of the research of its founding scientists (NERUCHEV 1869; LUDOGOVSKEY, 1875; SHISHKIN 1888). Thus, we consider the goal of agricultural economy to be the organization of rational and efficient management of the economy with the aim of obtaining the maximum possible net profit, formation of the population's well-being and the solution of socially important issues in the agrarian and economic sphere. At the same time, we establish the expanded subjectivity of the study of agricultural economics: from farm owners to teachers and civil servants, with the aim of effectively solving important political issues in the agrarian and economic sphere. In addition, we determine the factors of influence (land, labor, capital, management skills and knowledge) and conditions (entrepreneurial activity + scientific approach + competition) of the effective development of agriculture, which were expressed in their synthesis.

Today, the agricultural sector of Ukraine is one of the leading economies of the country. In the world, agricultural products of Ukraine compete with such recognized agricultural leaders produced in the USA, Brazil, Canada, etc. To maintain and increase the occupied positions, Ukraine needs to develop agrarian science as the foundation of achievements in the field of modern branch education and advanced agricultural production.

Rapid growth of agricultural efficiency production can serve highly qualified personnel, a level whose knowledge and skills would correspond to the modern world level of development agricultural innovations and technologies. Also, it would allow the country to increase the level of production and minimize its risks, control and ensure quality products, and completely change agrobusiness.

Without highly educated specialists in the field of agriculture production, it's not possible to expect good results. It puts forward special requirements for domestic agricultural educational institutions, regarding their security high-class scientific and pedagogical workers who are involved in international projects, as well as carry out their own scientific research, have advanced knowledge, develop innovative technologies, know how to use the latest tools and develop the ability to teach students. To ensure and anticipate the needs of today's educational services, scientific and pedagogical arsenal of higher education should be as their

own cadres, as well as invited (including foreign) ones, who could increase the effectiveness of the educational process with their knowledge.

REFERENCES

AGRICULTURE AND FORESTRY. v. 117, n. 3, p. 38–43, 1875.

BAUTIN, V. M.; KAZAREZOV, V. V. **Petrovsk (Timiryazevsk) Academy: formation (1873–1894)**. Vol. II. Part 1. Moscow: [s. n.], 2006. 420 p.

BOYARYNOVA, O. **An innovative aspect in the study of agricultural economy as a science in the research work of O. P. Ludogovsky**. Innovative scientific research in the conditions of global changes. Materials of the scientific and practical conference. Kherson: [s. n.], 2022. 136 p.

CHAYANOV, A. V. (1927). The main lines of development of agricultural thought in two centuries. *Development of the basic principles of agricultural science in Western Europe*. Moscow. 231 p.

COMMISSION to discuss the future structure of the Petrovsk Academy (1883–1884; Moscow). Minutes of the commission to discuss the future system of the Petrovsk Academy. Moscow: [s. n.], 1884. 204 p.

FORTUNATOV A. V. **In memory of A. N. Shishkin**. [S. l.]: [s. n.], 1899. n. 27, 913 p.

GARKAVKO, V. K. **About our daily bread science (Agricultural economy): the basis of theoretical teaching about the economy and organization of agricultural production**. Kyiv: [s. n.], 2018. 464 p.

GATAULIN, A. M. **Flagship of agroeconomic education**. Moscow: [s. n.], 2013. 180 p.

KUZNETSOV, I. A. **Essays on the history of agricultural economy in Russia: XIX – beginning of XX century**. Moscow: [s. n.], 2018. 390 p.

LUDOGOVSKEY, A. P. *et al.* **Handbook for Russian farmers**. Vol. II. St. Petersburg: [s. n.], 1876. 674 p.

LUDOGOVSKEY, A. P. **Fundamentals of agricultural economy and agricultural accounting**. Experience of leadership for practical owners, agricultural and real schools and a manual for the studies of students of higher educational institutions. St. Petersburg: [s. n.], 1875. 488 p.

LUDOGOVSKEY, A. P. Liebig's Law of Recurrence and the Rational Method for Determining Fertilizer Sizing. **Russian agriculture**, v. 5, p. 3-35, 1871.

MIGUNOV, R. A. A young look at the history of the development of economic thought in the MSHA. *In: Topical issues in the development of science and technology: a collection of*

articles by correspondence international scientific and practical conference of young scientists. Karavaevo: [s. n.], 2017. 341 p.

NERUCHEV, M. V. Agricultural Economy Review. **Russian agriculture**, v. 2, p. 387, 1869.

NERUCHEV, M. V. Rent theory and agricultural practice. **Russian agriculture**, v. 5, p. 61-64, 1869.

SHADRINA, O. V. (2019). **P. I. Havsevich (1883–1920)**: Scientist and organizer of research on the culture of medicinal plants in Ukraine. 2019. 240 f. Dissertation (Doctor of Philosophy) –National Scientific Agricultural Library of the National Academy of Agricultural Sciences, Kyiv, 2019.

SHISHKIN A. N. **Outline of the historical development of agricultural science and practice in the current century**. Introductory lecture given to students of the Petrovsky Academy in 1888, September 13th. Moscow Moscow: [s. n.], 1888.

SHISHKIN, A. N. **About agricultural economy**. [S. l.]: [s. n.], 1888. n. 3, 916 p.

SHISHKIN, A. N. **Agricultural economy**: introduction and Part 1 General. Second edition (no changes). St. Petersburg: [s. n.], 1908. 380 p.

THAYER, A. **Foundations of sustainable agriculture**. Moscow: [s. n.], 1830. 216 p.

VERGUNOV, V. A. **Professor P. F. Tushkan (1867–1942)**: a scientist, educator, public and political figure. Poltava: [s. n.], 2018. 112 p.

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