ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

2019 • 3

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫНЫҢ

БАЯНДАМАЛАРЫ

ДОКЛАДЫ

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН

REPORTS

OF THE NATIONAL ACADEMY OF SCIENCES
OF THE REPUBLIC OF KAZAKHSTAN

PUBLISHED SINCE 1944

ALMATY, NAS RK

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫНЫҢ
БАЯНДАМАЛАРЫ **2019 • 3**

«Қазақстан Республикасы Ұлттық ғылым академиясының баяндамалары»
ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

Меншіктенуші: «Қазақстан Республикасының Ұлттық ғылым академиясы» Республикалық қоғамдық бірлестігі (Алматы қ.)
Қазақстан республикасының Мәдениет пен ақпарат министрлігінің Ақпарат және мұрағат комитетінде 01.06.2006 ж. берілген **№5540-Ж** мерзімдік басылым тіркеуіне қойылу туралы куәлік

Мерзімділігі: жылына 6 рет.
Тиражы: 500 дана.

Редакцияның мекенжайы: 050010, Алматы қ., Шевченко көш., 28, 219 бөл., 220, тел.: 272-13-19, 272-13-18,
http://reports-science.kz/index.php/en/archive

Типографияның мекенжайы: «Аруна» ЖК, Алматы қ., Муратбаева көш., 75.

ДОКЛАДЫ **2019 • 3**
НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН

Доклады Национальной академии наук Республики Казахстан»
ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

Собственник: Республиканское общественное объединение «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 **№5540-Ж**, выданное 01.06.2006 г.

Периодичность: 6 раз в год.
Тираж: 500 экземпляров

Адрес редакции: 050010, г.Алматы, ул.Шевченко, 28, ком.218-220, тел. 272-13-19, 272-13-18
http://reports-science.kz/index.php/en/archive

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

REPORTS **2019 • 3**
OF NATIONAL ACADEMY OF SCIENCES OF THE
REPUBLIC OF KAZAKHSTAN

Reports of the National Academy of Sciences of the Republic of Kazakhstan.
ISSN 2224-5227
ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

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 5540-Ж, issued 01.06.2006

Periodicity: 6 times a year
Circulation: 500 copies

Editorial address: 28, Shevchenko str., of.219-220, Almaty, 050010, tel. 272-13-19, 272-13-18,
http://reports-science.kz/index.php/en/archive

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

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.104**
Volume 3, Number 325 (2019), 271 – 275

UDC 631.145

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AGRARIAN ENTREPRENEURSHIP AND INNOVATIVE METHODS OF ITS DEVELOPMENT

Abstract. Agrarian entrepreneurship is an important element in the development of agriculture and the immediate task of improving the innovation system of the agro-industrial complex of the Republic of Kazakhstan is to increase the agrarian innovation potential. According to the authors, in order for the innovative development of the agro-industrial complex of the RK to meet its purpose and justify the hopes placed on it in the foreseeable future, a full-fledged and comprehensive provision of this process is required, allowing it to overcome the features of its inertial and often stagnant and even regressive nature. This applies to all areas of the innovative development of the agro industrial complex of Kazakhstan. The introduction of IT technologies in Kazakhstan will not only increase the productivity of agricultural production, but also increase the competitiveness of agricultural products. Thanks to digitalization in developed countries, agriculture creates conditions for increasing production volumes, increasing the country's export potential.

Keywords: agrarian business, rural areas, innovations, methods, agro-industrial complex, agriculture.

INTRODUCTION

In the Message of the President of the Republic of Kazakhstan Nursultan Nazarbayev to the people of Kazakhstan dated January 10, 2018, digitalization and new technologies were named the main vector of development of the country. In a special way, this issue concerns agriculture, because it is extensive farmland and diverse climatic conditions that are the main resources for strengthening the economic stability of Kazakhstan. The backbone of the innovative development of the agro-industrial complex in the Republic of Kazakhstan is the reproduction of agricultural innovations and the adoption in mass practice of more advanced methods of agricultural production, which in their totality determine the innovative development of agriculture. Ensuring innovative development of the agro-industrial complex consists of two blocks - resource and institutional. The resource block includes financial, personnel, material and technical, informational support. The institutional unit includes organizational, economic, infrastructural, regulatory support; The development of innovation-oriented forms of management is adjacent to this group.

MAIN PART

The increased value of innovation development and the associated expectations of obtaining the required results in an acceptable time frame do not allow to rely only on the existing innovation system of the agro-industrial complex, which is not capable in its modern form with extended scales and sufficient rates to apply innovations in mass agricultural production practice. The basis of the mechanism of crisis phenomena in the agrarian sector of the economy was in the period of reform and is currently determined by a destructive policy with regard to providing measures for the innovative development of the agro-industrial complex.

From the experience of foreign countries, an innovative agrarian economy is formed when agro-industrial production is based mainly on the basis of innovative activity, which is impossible without new technologies for the formation of a single financial and information space.

Table 1 - State of innovation activity in the Republic of Kazakhstan

	Number of enterprises total, units			Deviation, %	of which are innovative			Deviation, %
	2015	2016	2017		2015	2016	2017	
The Republic of Kazakhstan	31784	31077	30854	0,97	2585	2879	2974	1,15
Akmola	1325	1301	1299	0,98	90	91	98	1,09
Aktobe	1236	1234	1149	0,93	86	115	116	1,35
Almaty	1643	1648	1797	1,09	114	129	146	1,28
Atyrau	1276	1193	1145	0,90	102	101	92	0,90
West Kazakhstan	857	917	932	1,09	35	33	49	1,40
Zhambylskaya	852	834	846	0,99	90	90	96	1,07
Karaganda	2340	2235	2309	0,99	216	238	257	1,19
Kostanay	1502	1438	1475	0,98	218	161	167	0,77
Kyzylorda	846	812	784	0,93	99	91	89	0,90
Mangystau	1027	1060	1131	1,10	41	43	40	0,98
Pavlodar	1354	1286	1292	0,95	65	83	112	1,72
North Kazakhstan	1047	1049	1023	0,98	111	119	115	1,04
Turkestan	884	905	939	1,06	52	60	50	0,96
East Kazakhstan	2091	1985	2010	0,96	240	296	303	1,26
Astana	4103	4003	4039	0,98	541	543	582	1,08
Almaty city	7970	7716	7124	0,89	377	590	550	1,46
Shymkent	1431	1461	1560	1,09	108	96	112	1,04

The number of enterprises in Kazakhstan has a tendency to decline by 3%, however, the number of entrepreneurs introducing innovations is steadily growing by 15%. At the same time, the highest growth of innovative enterprises is observed in Almaty by 46%, in Aktyubinsk by 35% and by 28% in Almaty oblasts.

Analysis of the innovation state in the republic consisted in the development of theoretical and methodological foundations, conceptual provisions for the formation of a system for the development of innovations in agriculture, taking into account the use of the institute of agricultural consulting in the process of innovative support for rural producers. Within the framework of the proposed system for the development of innovations in agriculture, the theoretical foundations and methodological provisions of the formation of the system for the adoption of innovations in agriculture were developed; the economic essence of innovation activity is revealed as the most effective direction for the development of the agrarian sector of the economy and a classification of innovations in agriculture is proposed.

Innovations in agriculture are actively used in all areas: crop production, animal husbandry, product processing, etc.

One of the flagships in the development of innovative digital solutions for agricultural automation in Kazakhstan is TerraPoint. A relatively young company of talented specialists today can compete with foreign suppliers of software for the automation of agricultural objects.

Among the new ideas that need to be implemented as soon as possible in the agro-industrial complex of Kazakhstan are:

• Unmanned aerial vehicles to control farmland

These machines make it possible not only to map farmland in a timely manner, but also to analyze the NDVI vegetation index. The use of UAVs in agriculture allows monitoring of weed infestation, analysis of soil heterogeneity and development of diseases, control of screenings, mapping, and much more.

• Unmanned transport agricultural vehicles

Worldwide, the development of unmanned tractors is under development. The first prototypes already exist. These machines will be able to cultivate the land on their own without a person and harvest according to the previously programmed scenario. In addition, there are already mini-robots for spot recognition of weeds and crop diseases, and accurate application of chemicals or fertilizers as needed.

• Automation of processing, storage and production of agricultural products

Innovative technologies for automation of agricultural facilities allow you to fully automate all processes, equipment and technological processes. This helps reduce production downtime, minimize the impact of the human factor and increase productivity, reduce losses and degrade grain quality.

• Sensors, sensors and automatic process control systems

Placed everywhere on farmland sensors can continuously transmit via radio channels the parameters of controlled crops and transport: humidity, temperature, fuel, the level of plant health. The obtained data is stored on the server and analyzed, promptly warning the heads of farms about the need to apply certain measures.

• GPS trackers and access control systems for recording the movement of grain from the field to the elevator

Thanks to GPS trackers, the agricultural machinery movement is constantly monitored, and the access control systems of agrotransport allow not only to ensure entry / exit for the current of only certain cars, but also to carry out Photo and video fixation of the vehicle entry and exit at the time of weighing the car body. Well, the automatic determination of the gross weight and tare will be a nice bonus.

• Precision Farming

This term is a kind of synthesis of all previous innovations. Precision farming involves an integrated high-tech agricultural management system, which includes geographic information systems (GIS), yield assessment technologies (Yield Monitor Technologies), variable rating technology (Variable Rate Technology), and remote sensing technologies. In other words, precision farming implies an “individual approach” to different parts of the field. This is a kind of "aerobatics" in plant growing.

Problems of investment security in the agricultural sector:

• in agriculture there is a steady trend of deterioration of financial and economic indicators;

• the profound consequences of the decline in production in the industry are the consistent destruction of its reproductive potential (technology, land, human factors, undermining of intellectual forces, the state of science, etc.);

• lack of own financial resources in agriculture, a significant reduction in long-term lending led to a significant reduction in investment activity;

• there is no system for organizing investment activities in agriculture, both in the country and its regions.

One of the forms of attracting capital to the industry is state participation as an investor. As part of this direction, a study of the regulatory legal acts on public-private partnership in the agricultural sector is carried out.

The revitalization of the investment process should be aimed at preserving and expanding the reproductive function of investments, contributing to increasing production capacity, raising and expanding existing production, as well as achieving financial stability and successfully overcoming crisis phenomena in agriculture.

The consequence of increasing the degree of investment attractiveness should be an increase in the socio-economic effectiveness of the functioning of the reproduction complex. The intensity of resource attraction depends on many factors that can be structured into two groups. The first is the characteristics of the objective prerequisites for placing funds, that is, the investment potential of the republic. The second group includes indicators of the economic dynamics of the state of the social sphere, institutional factors. This group describes the likelihood of investment risks, that is, the likelihood of complete or partial loss of invested resources, which foreign capital is especially afraid of.

Automation and modernization of the grain elevator allows to solve the following tasks:

Ensuring reliable operation, increased productivity and increased safety of operation of the grain elevator/mill;

Monitoring, analysis and visualization in real time of the state of the technological process of the grain elevator;

Management of grain movement routes at the production facility;

Improving the efficiency of working personnel, minimizing the influence of the "human factor".

Thus, the popularity of search queries reflects the reality. Kazakhstanis are not yet sufficiently informed about the existing technologies for the automation of the agro-industrial sector and the stages of a gradual transition to the digitization of agricultural enterprises.

CONCLUSION

The basis of innovative development is scientific and technical development for agro-industrial production as a constantly replenished and renewable source of continuously increasing opportunities for innovative renewal of the agro-industrial complex. Scientific and technical achievements often determine the very possibility of a transition to the sustainable development of the agro-industrial complex, whereas the implementation of the supporting measures of the innovation system determines how quickly such a transition will occur.

Consequently, one of the main tasks of ensuring blocks of the innovation system of the agro-industrial complex is the creation of favorable conditions for the formation of a fund of innovations and their development in production while smoothing the existing differences between the results obtained in production and the potential of scientific and technical developments. This refers to both the quantitative set of innovations that are available and accessible to consumers, and their ability to improve production, economic and other indicators of agro-industrial activity.

УДК 631.145

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АГРАРНЫҢ КӘСІПКЕРЛІКТЕРІ ЖӘНЕ ОНЫҢ ДАМУЫНЫҢ ИННОВАЦИЯЛЫҚ ӘДІСТЕРІ

Аннотация. Аграрлық кәсіпкерлік ауыл шаруашылығын дамытудың маңызды элементі және Қазақстан Республикасының агроөнеркәсіптік кешенінің инновациялық жүйесін жетілдірудің тікелей міндеті аграрлық инновациялық әлеуетті арттыру болып табылады. Авторлардың пікірінше, ҚР агроөнеркәсіптік кешенінің инновациялық дамуы оның мақсатына сай келуі және жақын болашақта оған үміт артатындығын дәлелдеу үшін, бұл процестің өзінің инерциялық және жиі тоқырау және тіпті регрессивтік сипаттамаларының ерекшеліктерін жеңуге мүмкіндік беретін толыққанды және жан-жақты қамтамасыз ету қажет. Бұл Қазақстанның агроөнеркәсіп кешенінің инновациялық дамуының барлық бағыттарына қатысты. Қазақстанда IT-технологияларды енгізу ауыл шаруашылығы өндірісінің өнімділігін арттырып қана қоймай, ауыл шаруашылығы өнімдерінің бәсекеге қабілеттілігін арттырады. Дамыған елдерде цифрландырудың арқасында ауыл шаруашылығы ауыл шаруашылығы өндіріс көлемін ұлғайтуға, еліміздің экспорттық әлеуетін арттыруға жағдай жасайды.

Түйін сөздер: аграрлық бизнес, ауылдық жерлерде, инновациялар, әдістер, агроөнеркәсіптік кешен, ауыл шаруашылығы

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АГРАРНОЕ ПРЕДПРИНИМАТЕЛЬСТВО И ИННОВАЦИОННЫЕ МЕТОДЫ ЕГО РАЗВИТИЯ

Аннотация. Аграрное предпринимательство является важным элементом в развитии сельского хозяйства и непосредственной задачей совершенствования инновационной системы АПК РК является

увеличение аграрного инновационного потенциала. По мнению авторов, чтобы инновационное развитие АПК РК отвечало своему предназначению и оправдало в обозримом будущем возлагаемые на него надежды, требуется полноценное и всестороннее обеспечение этого процесса, позволяющее преодолеть черты его инерционного, а нередко застойного и даже регрессирующего характера. Это относится ко всем направлениям обеспечения инновационного развития АПК РК. Внедрение IT-технологий в Казахстане повысит не только продуктивность сельхозпроизводства, но и позволит увеличить конкурентоспособность сельхозпродукции. Благодаря цифровизации в развитых странах в сельском хозяйстве создаются условия для наращивания объемов производства, повышения экспортного потенциала страны.

Ключевые слова: аграрное предпринимательство, сельские территории, инновации, методы, агропромышленный комплекс, сельское хозяйство.

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ISSN 2518-1483 (Online), ISSN 2224-5227 (Print)

http://reports-science.kz/index.php/en/archive

Редакторы *М. С. Ахметова, Т.А. Апендиев, Д.С. Аленов*
Верстка на компьютере *А.М. Кульгинбаевой*

Подписано в печать 6.06.2019.
Формат 60x881/8. Бумага офсетная. Печать – ризограф.
15,5 п.л. Тираж 500. Заказ 3.