


## ЕКОНОМІКА

UDC 331.522/582:332.122 (1-22):37

JEL E24, I25, R51

**Education as a factor in the formation of human capital in rural areas**Utechenko D. *Bila Tserkva National Agrarian University* dashautechenko@gmail.com

Utechenko D. Education as a factor in the formation of human capital in rural areas. *Ekonomika ta upravlinnja APK*. 2020. No 2. PP. 95–105.

Рукопис отримано: 10.10.2020 р.

Прийнято: 24.10.2020 р.

Затверджено до друку: 24.11.2020 р.

doi: 10.33245/2310-9262-2020-159-2-95-105

The article considers the influence of education on the formation of a qualitative component of human capital in rural areas.

The current state of educational training of the rural population is being assessed. The main root causes of the low share of residents of rural settlements with higher education have been identified. It is proved that the low level of prestige of agricultural work is almost the main factor that prevents young people from choosing agricultural education and stimulates them after graduation - to work in other sectors of the economy.

It is established that the relatively low educational level of the rural population of Ukraine is due not only to limited access to general secondary and higher education, but also to the constant migration losses of the most active part of young people who go to cities for higher education and try to stay there.

An assessment of the current state of scientific work of institutions of higher education in agriculture. The root causes of low activity in attracting private investment in the development of innovative products have been identified.

It is established that the current financial support of innovation in higher education institutions does not correspond to the real possibilities of their scientific potential. This situation limits the development and effectiveness of innovation, as well as the prospects for its commercialization.

On the basis of generalization of foreign and domestic experience of higher education institutions of agrarian profile the forms of development of public-private partnership of higher education institution with agrarian business are offered.

The root causes of the reluctance of scientists of higher education institutions to engage in the development of innovative products for the needs of business entities in the field of agribusiness have been clarified.

In order to form an entrepreneurial environment in agricultural universities, it is necessary to create conditions under which scientists will have the opportunity to develop innovative projects based on infrastructure support, namely: jobs, expert advice, opportunities to communicate with the business community. In the university - is the formation of a single educational research and innovation space, which will involve departments, research laboratories and small innovative enterprises created with the participation of scientists of the departments, as well as students, graduate students and doctoral students.

The necessity of forming a system of intensive human education on the basis of mass retraining both at the expense of personal human resources and at the expense of social investments of business groups is substantiated, which will allow to support the continuous process of "lifelong learning".

**Key words:** human capital, sustainable development, rural areas, expanded reproduction, socio-economic instruments, education, innovation infrastructure.

**Problem statement and analysis of recent research.** Modern conditions of society development change the place and role of man by transforming his intellectual potential into a major factor in scientific and technological progress,

strengthening the humanization of economic relations, which requires the development of socio-economic tools to ensure reproduction and flexible adaptation of human capital to sustainable rural development. The choice of appropriate tools

should be based on the priorities of the model of economic growth, the transition from a technocratic to anthropocratic approach, which highlights the dominance of human capital as a factor of structural modernization in terms of synergies based on multipolarity of human capital. In the process of choosing tools to reproduce and stimulate human capital in the latest conditions, it is advisable to identify two components of reproduction and capitalization of human potential: formation and development of innovative components of human potential, namely: creative thinking and cross-functionality, ability to search and process large amounts of information; broad worldview thinking within the concept of sustainable development, the ability to generate new knowledge and use it in practice, have the skills to flexibly adapt to innovative technologies and integrate with them; formation of the environment of innovative qualities capitalization of human capital in the process of economic activity.

Theoretical, methodical, and applied works of many domestic and foreign scientists are devoted to the study of various aspects of the influence of education on the formation of human capital. Among them, the publications of such scientists as V.P. Antonyuk, A.M. Bidiuk, D.M. Zagirnyak, V.I. Kutryyova, I.F. Prokopenko, I.S. Kalenyuk, T.M. Vlasyuk, O.V. Pavlenko, Y. Bondarchuk, T. Rubel, and others highlight the urgency and depth of the researched problems.

Investing in human capital is one of the most researched scientific problems. Thus, the initial investment is realized within the institution of the family, and then the person realizes them based on the capitalization of his or her potential in the field of economic relations. The basis of opportunities and sufficiency of the investment component of human capital reproduction is the amount of remuneration for capitalized potential, and in terms of socio-economic transformation and their effectiveness is determined by human influence and is directly proportional to accumulated knowledge and capitalization of innovative components of human capital.

**The aim of the study** is to develop theoretical approaches and practical recommendations for strengthening the role of educational institutions, in particular agricultural institutions of higher education, in improving the quality of human capital in rural areas.

**Material and research methods.** The methodological and theoretical basis of the study are the scientific works of leading foreign and domestic scientists of classical and neoclassical direction, agricultural economists as well as legislative, legal and regulatory materials of Ukraine.

To achieve this goal, an appropriate system of research methods was used: monographic – in formulating the purpose and conclusions of the study, the results of which are reflected in the article. The method of theoretical generalization was used in the critical analysis of research results of domestic and foreign scientists on the justification of the level of education on the formation of human capital in rural areas. In the process of analyzing the level of human capital education in rural areas, the statistical and economic method was used, in particular its methods – comparison, dynamic, structural analysis, etc., which made it possible to clearly identify factors influencing the level of education of the rural population.

**Research results and discussion.** In the context of the policy of new industrialization, when innovative development is a multiplier effect of human abilities, to permanently increase their human potential and creative abilities for self-realization, it is necessary to create productive forces, primarily through education, which will promote flexibility of public policy, as the ability to reorient resource flows from traditional sectors of the economy to priority sectors in accordance with changes in long-term dynamics of the world economy. Here is the opinion of A. Smith, who explained the relationship between economic development and the education system as follows: economic development is a process that occurs in the minds of people, ie it can be called a learning process [1], and the transition to a new technological way is possible only with the professional growth of new specialists in combination with innovative technologies [2].

In recent years, agriculture has become one of the leading sectors in the socio-economic development of the country, as it invests large sums of money, a set of measures aimed at supporting an important sector of the Ukrainian economy. However, only organizational efforts, material and financial resources are not enough to ensure the growth of agricultural production. The availability of qualified personnel becomes the most important factor in the effective development of agriculture [3].

The results of the research indicate that there is a decrease in the population of rural areas who are educated (Table 1). This circumstance is caused to some extent by negative demographic processes, which are now observed in rural areas, caused primarily by economic factors.

Similar phenomena were negatively reflected in the structure of the rural population by level of education. It should be noted that over the last three years there has been a decrease in the share of the rural population with a completed higher

Table 1 – Distribution of the rural population by level of education \*

Indicator	Year					2019 in %	
	2015	2016	2017	2018	2019	2015	2018
Population aged 6 and over with education - total (thousands)	13055,1	12395,4	12390,3	12342,8	12289,8	94,1	99,6
Population distribution (%) at the age of 6 and older by level of education:							
completed higher education	9,8	11,5	10,8	10,2	9,9	0,1	-0,3
undergraduate degree (Bachelor's degree)	0,7	0,9	1,0	0,9	0,6	-0,1	-0,3
incomplete higher education	14,7	15,9	16,2	16,6	16,2	1,5	-0,4
vocational and technical education	22,7	22,5	23,3	23,9	24,4	1,7	0,5
complete general secondary education	22,9	22,3	21,7	21,8	22,7	-0,2	0,9
basic general secondary education	14,0	14,2	13,8	14,1	12,6	-1,4	-1,5
primary general secondary education	9,4	7,6	8,0	7,4	7,8	-1,6	0,4
have no primary general secondary education and are illiterate	5,8	5,1	5,2	5,1	5,8	0	0,7

Source: compiled according to the State Statistics Service of Ukraine.

education. In our opinion, the main factors that influenced this situation are the lack of employment opportunities and the underdeveloped social infrastructure of higher education institutions in rural areas. Based on a questionnaire survey of students of agricultural education institutions, it was found out that the low level of prestige of agricultural work is almost the main factor that prevents young people from choosing agricultural education and encourages them to work in other areas of the national economy.

The main share of the rural population in terms of education is made up of people with vocational education, which they receive in vocational schools, in specialties that are in demand in the rural labor market – mechanics, electric and gas welders, truck drivers, etc.

However, as evidenced by the practical activities of highly concentrated agricultural enterprises – the training of today's young professionals is not high, which forces the management of the corporate sector of the agricultural economy to incur additional costs for their training in accordance with the existing technological level [4].

Of concern is the proportion of the rural population over the age of 6 who do not even have primary education and cannot write, with an increase in their share. A similar phenomenon observed among the rural population in the era of computerization and the development of digital telecommunications is evidence of the anachronism of society.

According to research, most households with a share of illiteracy are socially disadvantaged,

with low aggregate incomes. Besides, most above-mentioned people have physical disabilities. Therefore, it is necessary to develop inclusive education among the rural population, using existing technical means of information transfer.

Most heads of rural households consider higher education as a way for rural youth to migrate to cities, where living standards differ significantly from those in rural areas. Given the concentration of higher education institutions in large cities and their almost complete absence in small towns and rural areas, it can be concluded that higher education is one of the main reasons for the constant migratory outflow of rural youth to cities [5]. According to the analysis, the redistribution of generations of young people by place of residence takes place at the appropriate age of admission to higher education institutions (15–16 years, and especially – 17–18 years): the number of rural residents decreases sharply and the number of urban increases. At the age when they usually graduate from a higher education institution (22–23 years old), there is a certain redistribution of young people from urban settlements to rural areas, but its volume does not compensate for a third of the previous one. That is, a temporary move to the city to study often causes a change of permanent residence [6]. As a result, modern urbanization processes in Ukraine occur mainly at the expense of people with higher education.

Thus, during 2015-2019 there is a decrease in the share of the rural population over 22 years and older who have completed higher education (Table 2).

Table 2 – Dynamics of education in the age groups of the rural population

Indicator	Year					2019 in %	
	2015	2016	2017	2018	2019	2015 p.	2018 p.
Share of the population (%) aged 22 and older who have completed higher education	13,0	12,3	11,9	12,4	12,4	-0,6	0
Share of the population (%) aged 21 and older who have a Bachelor's Degree	1,2	1,0	0,7	1,9	1,9	0,7	0
Share of the population (%) aged 20 and older who have incomplete higher education	18,9	19,2	18,9	18,9	18,2	-0,7	-0,7
Share of the population (%) aged 18 and older who have the vocational and technical education	26,8	27,2	28,0	28,2	31,1	4,3	2,9
Share of the population (%) aged 18 and older who have complete general secondary education	24,5	24,5	25,5	28,2	56,0	31,5	27,8
Share of the population (%) aged 16 and older who have basic general secondary education and primary general secondary education	17,4	17,4	16,0	14,6	13,0	-4,4	-1,6

Source: compiled according to the State Statistics Service of Ukraine

It should be noted that the largest share in the structure of the rural population by level of education aged 18 years and older is occupied by persons with vocational and general secondary education. Currently, the state guarantees citizens universal access and free preschool, primary general, basic general, secondary (complete) general education and primary vocational education in state educational institutions. On a competitive basis, the state should provide secondary vocational, higher vocational and fundamental scientific, professional education in public educational institutions within the state educational standards, if a citizen receives the education of this level for the first time [7].

Formally, these constitutional guarantees are observed. Education in schools is free. All higher education institutions of the I-VI accreditation levels of the state form of ownership accept entrants at the expense of the state budget, although many of them also provide paid education. Due to lack of funds, most rural households provide financial access to young family members only to secondary general education and primary vocational education.

The relatively low level of education of the rural population of Ukraine is due not only to limited access to general secondary and higher education institutions, but also to the constant migration losses of the most active part of young people who go to cities for higher education and try to stay there. Mostly the irreversible nature of such migrations is due not only to the attractiveness of the urban way of life. This is primarily due to the pos-

sibility of realizing human potential, in particular, through participation in the labor market.

The world has recognized the model of the scientific community, in which the central place is occupied by educational institutions that ensure the connection of science, education and innovative business. Universities have become science and technology centers in many European countries [8]. Thus, in the world, educational institutions are full participants in the innovation process, resulting in a classic symbiosis: research and educational organizations develop innovative products, which are purchased by business structures, and the state creates the necessary infrastructure for innovation. In the process of implementing innovations, there is economic growth not only for the participants in the process, but also for the state as a whole [9].

Under such conditions, the agricultural university should ensure the formation of scientific-innovative and educational space to train specialists under modern requirements, and the state should create favorable conditions in the rural sector for the formation of various innovation structures, including small innovative enterprises, vertically integrated innovation structures, technology parks, structures for the implementation of social innovations, etc. At the same time, the absence of modern forms of innovative entrepreneurship will have the effect of inhibiting or preventing the emergence of new innovative practices and real positive results.

Currently, research work is conducted in agricultural higher education institutions by 14 re-

search institutes and 67 problem laboratories, almost 400 departments have been established in production, and information and consulting services for agricultural producers operate.

Practical training of students and research work takes place in 94 research farms and other production units, which use almost 105.4 thousand hectares of land and specialize mainly in seed production and breeding.

It should be noted that the costs of research in the field of scientific activities "agricultural sciences" occupy a small share in the structure of research in the country as a whole (table 3). This circumstance is caused to a certain extent by the priorities of the state for the development of a certain area of research.

The main areas of spending are basic and applied research. It should be noted that during 2017–2019, the costs of experimental development and applied research increased significantly, which in our opinion is focused on the satisfaction of agricultural producers in innovative developments.

It should be noted that during 2017–2019, the main source of funding for research in the field of "agricultural sciences" is budget funding, which occupies more than 80% in the cost structure (Table 4).

At the same time, insignificant amounts of costs are borne by business entities, which is evidence of the non-competitiveness of domestic innovative products compared to foreign counterparts.

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Despite the significant costs, there are some indications that the contribution of higher education and research in agriculture is insufficient for the agribusiness sector. Domestic agricultural scientists are not very visible in the international arena. They do not publish their studies in international ranking journals and almost do not present their works at international and European conferences, besides they are separated from the international research community. Thus, we share the view that education and research in agriculture and in the

Table 3 – Dynamics of costs by type of scientific activity "natural sciences" (thousand UAH)

Indicator	Total	Including		
		basic research	applied research	scientific and technical (experimental) developments
2017	821950,1	276084,9	388186,6	157678,6
in % to total	6,1	9,4	12,3	2,2
2018	975952,0	327045,9	460565,0	188341,1
in % to total	5,8	8,7	12,9	2,0
2019	963268,2	262636,0	489089,6	211542,6
in % to total	5,6	7,0	13,5	2,1
2019 in % till 2017 p.	117,2	95,1	126,0	134,2
2019 in % till 2018 p.	98,7	80,3	106,2	112,3

Source: compiled according to the State Statistics Service of Ukraine.

Table 4 – Dynamics of costs for research work in the scientific field of "agricultural sciences" in terms of sources of formation (thousand UAH).

Indicator	Total	Including		
		Business sector	Public sector	Higher education sector
2017	821950,1	78265,1	682342,4	61342,6
in % till total	6,1	1,0	14,8	6,3
2018	975952,0	78417,6	825730,3	71804,1
in % till total	5,8	0,8	14,1	6,4
2019	963268,2	81498,8	813114,8	68654,6
in % till total	5,6	0,8	13,6	6,5
2019 in % till 2017	117,2	104,1	119,2	111,9
2019 in % till 2018	98,7	103,9	98,5	95,6

Source: compiled according to the State Statistics Service of Ukraine.

agricultural economy in particular can be more effective. There is an urgent need to involve domestic scientists in research areas as well as for them to have the opportunity to get acquainted with the latest trends in technological development in the leading countries [10].

It should be noted that in contrast to the world's leading countries, Ukraine has much lower levels of public funding for higher education institutions in terms of spending on research and innovation. Thus, the share of total expenditures in GDP in 2018 was 0.47%, including 0.17% from the state budget. According to 2017 data, the share of R&D expenditures in the GDP of the EU-28 countries averaged 2.06%. The highest share of research and development expenditures was in Sweden – 3.4%, Austria – 3.16%, Denmark – 3.05%, Germany – 3.02%, Finland – 2.76%, Belgium – 2.58%, France – 2.19%; lower – in Romania, Latvia, Malta, Cyprus and Bulgaria (from 0.5% to 0.75%) [11].

We believe that the current financial support for innovation in higher education institutions does not correspond to the real possibilities of their scientific potential. This situation limits the development and effectiveness of innovation as well as the prospects for its commercialization. As a result, there is a significant gap in the number of innovative enterprises created by groups of classical, technical, technological, agricultural universities. It is worth noting that the most successful are technical universities. Today, almost every institution of higher education is looking for tools and mechanisms to ensure the intensification of scientific and innovative activities, which requires appropriate adjustments to the organizational structure of their research units.

It is important to note that the results of innovation are not yet widely demanded by business structures of the real sector of the economy, therefore, ways should be sought to strengthen integration ties in the chain "university-business" [12]. Thus, the underdevelopment of long-term economic relations of innovation units of higher education institutions is one of the reasons for the low rates of innovative developments implemented by the business sector. The analysis gives grounds to assert the presence of the following main inhibitory factors, namely:

the lack of a modern mechanism that balances the long-term economic interests of developers of innovative products and their consumers during the transfer of new technologies to enterprises. This is primarily due to the lack of long-term links in higher education institutions and business structures that mediate all phases of the innovation process (research – research production – implementation – use);

insufficient funding of innovation infrastructure of universities, lack of targeted programs for the development of partnerships between educational institutions and business as well as other participants that provide research, on the one hand, and regional development institutions (Investment Fund, Venture Finance Fund) – on the other;

low professional level of personnel for innovation infrastructure, lack of orders for their training by business structures and the state;

limited economic incentives for business structures in the introduction of innovative technologies is largely due to the lack of investment resources needed to finance and implement innovative developments in production processes.

In addition, the process of creating a modern innovation infrastructure in each university is complicated. It is obvious that for its creation it is necessary to reach certain scales and incomes from innovative activity. That is why the process of creation and development of inter-university centers for collective use of equipment and facilities on the initiative of the Ministry of Education and Science of Ukraine is currently underway in the country.

It is expedient to identify the factors of low activity of university lecturers in the processes of creation and functioning of scientific and innovative structures of higher education institutions. The key ones are:

significant intensification of lecturers' educational activities in recent years (introduction of new standards of educational qualification levels and specialties, which requires the development of educational programs, constant updating of academic and methodological complexes, preparation of electronic textbooks and manuals, Moodle system and distance learning courses, etc.);

increasing the requirements for scientific printed products (preparation of articles for publication in peer-reviewed scientific journals included in the scientometric databases Scopus and Web of Science, professional publications);

introduction of educational courses in the English language;

high labor costs associated with the organization of innovation units at low incomes or free of charge at the initial stage of its life cycle, etc.

The lack of experience in marketing innovation can be explained by the fact that it could not be formed in an environment where there are only a few attempts to successfully commercialize university innovations [13]. One of the unresolved issues is the shortage of equipment and the lack of rent, which is used in research and innovation. One of the reasons for this situation, in our opinion, is the improper practice of higher education institutions to use leasing agreements under which

universities and the innovative units created by them could gain access to the necessary equipment. Another reason is the lack of examples of the organization and operation of inter-university centers in Ukraine, which provide expensive and unique equipment for rent.

In generalizing the foreign experience of commercialization of university innovations, it is necessary to focus on organizational forms through which the integration of resources and activities takes place as well as environmental factors that contribute to the development of innovative activities of universities. Our comparative analysis of modern practice of development of innovative activity of higher education institutions, the processes of its commercialization testifies to the diversity of approaches to solving these problems.

Thus, typical approaches in the United States are as follows:

1. Development by regional public authorities of strategic plans for the development of territories, which include the following main and inter-related areas: the creation and development of intellectual capital in state universities; formation of clusters; creating a favorable tax environment; improving the system of training entrepreneurs [14].

2. The intensification of research in universities, the use of their results by business is associated with the adoption in 1980 of the Bayh-Dole Act according to which universities become the owners of inventions funded by the federal government. Similar laws were later passed at the state level [15].

3. A fundamentally important point is the focus of universities on certain business sectors. Most of them are science-intensive clusters, primarily in such areas of knowledge as biology, pharmaceuticals, information and communication technologies, new media and telecommunications. Among the industries targeted by educational institutions are electronic engineering, aerospace, automotive.

4. Creation of an effective infrastructure of innovative activity in universities. Scientists consider the experience of Kent State University in Ohio the most successful example [16].

Another example of an effective innovation infrastructure is the experience of the University of Texas at Austin, where the Department of Technology Commercialization has been established with the main areas of activity: evaluation, protection, marketing and licensing of innovative developments and software at the university; assistance in creating startups; development of cooperation with companies, investors, and other stakeholders in the field of technology commercialization; advising university staff on patent protection and commercialization [17].

5. The use of various forms of cooperation between universities and business structures within the framework of public-private partnership, which contributes to the innovative development of the economy. Such forms include public-private cooperation agreements in the field of research and development to transfer technology from the public sector to private production, innovation, and technology partnerships. The state not only promotes the establishment of such partnerships, but also directly participates in their activities on behalf of national agencies, research centers, and universities. This form is designed to attract venture capital to finance science and technology projects, industry research centers, and universities. The goals of their formation are the intensification of joint research of business and universities; strengthening the link between research and technological development; simplifying procedures for the transfer and commercialization of innovative technologies by pooling the financial resources of industry, universities, and state governments.

The experience of cooperation between universities and enterprises of the real sector of the economy in Sweden deserves attention, in particular the practice of creating and developing a modern innovation center in Linköping, specializing in information technology, medicine and pharmacology [18].

The main element of this system is the university holding company on the territory of which the research centers of large companies are located. The first step of the university in the field of innovation was the introduction of a technical program for students in the specialty "Innovation Management". In addition to conducting research, the holding initiates the creation of companies by students and lecturers and even provides them with small start-up capital. More than a third of the technopark's enterprises work based on ideas that originate directly at the university. The path from idea to commercialization of the product takes several years. If a graduate or lecturer has an idea, he or she is sent to an entrepreneurship training center to find out how economically viable it is for entrepreneurship. If during the training, the initiator of the idea prepares a business plan and he has a desire to create a company, he moves to a business incubator, where his newly created company receives office, marketing, accounting, legal and other support for a minimum fee. Two specialized business incubators "Collegium" and "Berzelius" support the cluster priorities of Linköping. The municipality funds all support structures (entrepreneurship training centers, business incubators, etc.).

It should be noted that it is difficult for mid-level universities to create and maintain their own technology transfer centers or pay for the services of external organizations. One way to solve this problem is to create technology transfer centers on a collective basis. In this regard, it is worth considering the example of France, where the National Research Agency has set up a special fund to create accelerating companies for technology transfer in order to fragment such services at the regional level. Today there are already 11 such enterprises belonging to a consortium of universities and state scientific organizations, which finance the "substantiation of the concept" and commercialization of intellectual property [19].

For domestic educational institutions of the agricultural profile is of interest to the innovation center "Vitagora" of the National Superior Institute of Agronomic Sciences, Food and the Environment AgroSup Dijon (France), which aims to develop and implement various projects in the field of food technology. The most interesting projects are developed not only independently, but also jointly with foreign partners, including Japan, South Korea, Russia, and Portugal. Among the latest developments of "Vitagora" are three projects. The first is the development of special packaging that allows you to extend the shelf life of food. Due to this, manufacturers have the opportunity to export their products to the countries furthest from France – Japan, South Korea, and others. Another project is the production of the so-called "currant pepper". Based on the processing of black currant twigs, scientists have managed to develop another new local product, which is used as an organic food additive for cooking. The pride of Vitagora food producers is the project of making special bakery products, which are recommended for elderly people. Due to the content of special substances, this bread is not only useful but also has excellent taste. Bread promotes digestion, so instead of pills, people can eat this bread and thus take care of their health.

Note that in other Western European countries, the development of innovation in universities is associated with the creation of technical implementation zones (technology parks), which develop fundamentally new technologies, materials and products, experimental small-scale production of science-intensive products [20]. The inflow of capital from outside, the creation of investment funds in technology parks, which finance the efforts of many small firms, are designed to facilitate the efficient transfer of technological developments for mass industrial use. On a preferential basis, employees of companies are provided with premises for rent, consulting with leading scien-

tists, appropriate equipment and the opportunity to use the library funds of universities. Note that the key participant in technology parks, their basic structure are universities. By participating in joint commercial projects with private businesses, educational institutions create new opportunities for themselves. They receive:

- an additional and significant source of income, and, accordingly, expand funding for their innovative activities;

- the opportunity to participate in all phases of the innovation process (research – research production – implementation – use).

Besides, they provide jobs for graduates and Ph.D. students, secondary employment of faculty [21].

Constraining factors and obstacles in the development of innovative activities of agricultural universities and, accordingly, their positive impact on human capital formation is the imperfection of legislation in the field of regulation of small innovative enterprises (SIE), namely – change of organizational and legal form of educational institution causes the loss of the status of small business entities; the complexity of the procedure for organizing the SIE and approval of activities; the current legislation does not provide transparent benefits for participants in innovation activities; problems of finding an intellectual property that has a commercial demand and can be included in the statutory fund (mostly protection documents on the results of intellectual property are focused on compliance with formal features in candidate and doctoral dissertation research); staff issues (insufficient readiness of the faculty of universities to take responsibility for the establishment of enterprises as a founder); the current tax legislation is not adapted for innovative enterprises with the participation of educational institutions and does not take into account their features; financial difficulties in creating the SIE (priority sources of funding should be considered grants, government contracts, subsidies, income from their own business and the implementation of scientific developments); high level of business risk in the activities of SIE; lack of a wide range of consumers of innovative products (services); the imperfection of SIE information support; organizational problems in the process of functioning of the SIE (conclusion of lease agreements, if the company is registered on the territory of the university; problems of intellectual property protection).

**Conclusions.** In order to form an entrepreneurial environment in agricultural universities, it is necessary to create conditions under which scientists will have the opportunity to develop innovative projects based on infrastructure support:



jobs, expert advice, and opportunities to communicate with the business community. In the university one can form a single educational research and innovation space, which will involve departments, research laboratories and small innovative enterprises created with the participation of scientists of the departments, as well as students, Ph.D. students and postdoctoral students. This approach will provide a full cycle of training of highly qualified specialists, generation of new knowledge, innovative developments, and production of innovative products.

At the same time, it is necessary to pay attention to the issue of new approaches in the field of agricultural education in accordance with the requirements of modern development based on the provision of higher education standards in terms of general cultural competencies. Since we study the issue of reproduction of human capital in rural areas, in the current conditions of constant changes and the need to implement the principles of sustainable development, it is important to form the competencies of innovative culture of consumption – "green" consumption, as the ability to reduce adverse effects of the consumption of innovative goods or services on humans and the environment, as well as to instill skills of active use of information, which will allow for a rational search and synthesis of information sources with the subsequent generation of innovative ideas. In general, this will promote the emergence of competitive professionals in the labor market. We believe that such specialists will be able to quickly and flexibly update the potential of human capital in accordance with the pace of scientific and technological progress and the needs of agriculture and rural areas, as well as independently improve professional skills, justify sound decisions to reduce transaction costs in the process of professional and daily activities.

Another important condition for increasing the human capital potential of rural areas is the consolidation of higher education standards, namely in terms of current professional competencies – the development of innovative skills, i.e. the ability to produce new scientific knowledge, and innovative – the ability to anticipate economic benefits and adhere to principles of sustainable development. There is also a need for agricultural education institutions to develop a set of measures to implement educational programs for the professions of the future. Today, the list of such professions should include the following: virtual reality designer, which will create a comfortable environment for social infrastructure (museums, offices, medical institutions, etc.); a robotics engineer in agricultural production, services, etc. to

create ethical standards for the rational combination of robots and humans; virtual guide; designer of environmentally friendly and "smart rural area"; city farmer, i.e. a specialist in organizing the production of farm products in the city; ecosystem restoration specialist; recycling specialist as a developer of new environmental and low-cost technologies.

Introduction of the block of humanities in curricula for all areas of training of agricultural specialists, for example, "Man and his needs" to form in the future specialist knowledge about human nature, understanding of its needs, conditions of rational existence and development in society. This will make it possible to obtain a multiplier effect of the agricultural science and technology development not for the sake of science and production, but of science for man. Such a transformation will allow to produce cognitive knowledge in the conditions of formation of functional connections in science and to concentrate them (knowledge) for further practical use, thus creating preconditions for the collective innovation process.

Another important condition for improving the educational component of human capital in rural areas is to conduct quality career guidance in order to attract potential applicants to study in higher education institutions. It is the establishment of a link "rural school – agricultural institution of higher education" will show young people living in rural areas the importance of higher education in the life of every person.

In the current conditions, it is necessary to form a system of intensive human education based on mass retraining at the expense of both personal resources and social investments of business groups, which will support the continuous process of "lifelong learning".

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## Освіта як чинник формування людського капіталу сільських територій

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У статті розглянуто вплив освіти на формування якісної складової людського капіталу сільських територій.

Здійснено оцінку сучасного стану освітньої підготовки сільського населення. Встановлено основні першопричини низької питомої ваги жителів сільських населених пунктів, які мають вищу освіту. Доведено, що низький рівень престижності сільськогосподарської праці є чи не основним чинником, що перешкоджає вибору молоддю аграрної освіти і стимулює їх після закінчення – працювати в інших сферах господарства.

Встановлено, що відносно низький освітній рівень сільського населення України зумовлений не лише обмеженістю доступу до закладів повної загальної середньої та вищої освіти, а й постійними міграційними втратами найактивнішої частини молоді, яка виїздить у міста для здобуття вищої освіти і після закінчення навчання намагається там залишитися.

Здійснено оцінку сучасного стану ведення наукової роботи закладів вищої освіти аграрного спрямування. Визначено першопричини низької активності до залучення приватних інвестицій в розробку інноваційних продуктів.

Встановлено, що поточне фінансове забезпечення інноваційної діяльності у закладах вищої освіти не відповідає реальним можливостям їхнього наукового потенціалу. Така ситуація обмежує розвиток і результативність інноваційної діяльності, а також перспективи її комерціалізації.

На основі узагальнення зарубіжного та вітчизняного досвіду діяльності закладів вищої освіти аграрного профілю запропоновано форми розвитку державно-приватного партнерства ЗВО з аграрним бізнесом.

З'ясовано першопричини небажання науковців ЗВО аграрного профілю займатися розробками інноваційних продуктів для потреб суб'єктів господарювання в сфері агробізнесу.

З метою формування в аграрних університетах підприємницького середовища необхідно створити умови, за яких науковці матимуть можливість розвивати інноваційні проєкти на основі інфраструктурної підтримки, а саме: робочими місцями, консультаціями фахівців, можливостями спілкування із бізнес-спільнотою. В умовах університету – це формування єдиного освітнього науково-інноваційного простору, до якого залучатимуть кафедри, науково-дослідні лабораторії та малі інноваційні підприємства, створені за участю науковців кафедр, а також студентів, аспірантів і докторантів.

Обґрунтовано необхідність формування системи інтенсивної освіти людини на основі масової перекваліфікації як за рахунок особистих ресурсів людини, так і соціальних інвестицій бізнес-груп, що дасть можливість підтримувати неперервний процес «освіта упродовж життя».

**Ключові слова:** людський капітал, сталий розвиток, сільські території, розширене відтворення, соціально-економічні інструменти, освіта, інноваційна інфраструктура.

#### **Образование как фактор формирования человеческого капитала сельских территорий**

**Утеченко Д.М.**

В статье рассмотрено влияние образования на формирование качественной составляющей человеческого капитала сельских территорий.

Осуществлена оценка современного состояния образовательной подготовки сельского населения. Установлены основные первопричины низкого удельного веса жителей сельских населенных пунктов, имеющих высшее образование. Доказано, что низкий уровень престижности сельскохозяйственного труда является едва ли не основным фактором, препятствующим выбору молодежи аграрного образования и стимулирует их после окончания – работать в других сферах хозяйства.

Установлено, что относительно низкий образовательный уровень сельского населения Украины обусловлен не только ограниченностью доступа к учреждениям полного общего среднего и высшего образования, но и постоянными миграционными потерями активной части молодежи, которая выезжает в города для получения высшего образования и после окончания учебы пытается там остаться.

Осуществлена оценка современного состояния ведения научной работы высших учебных заведений аграрного направления. Определены первопричины низкой активности к привлечению частных инвестиций в разработку инновационных продуктов.

Установлено, что текущее финансовое обеспечение инновационной деятельности в учреждениях высшего образования не соответствует реальным возможностям их научного потенциала. Такая ситуация ограничивает развитие и результативность инновационной деятельности, а также перспективы ее коммерциализации.

На основе обобщения зарубежного и отечественного опыта деятельности учреждений высшего образования аграрного профиля предложены формы развития государственно-частного партнерства высших учебных заведений с аграрным бизнесом.

Выяснено первопричины нежелания ученых высших учебных заведений аграрного профиля заниматься разработками инновационных продуктов для нужд субъектов хозяйствования в сфере агробизнеса.

С целью формирования в аграрных университетах предпринимательской среды необходимо создать условия, при которых ученые смогут развивать инновационные проекты на основе инфраструктурной поддержки, а именно: рабочими местами, консультациями специалистов, возможностями общения с бизнес-сообществом. В условиях университета – это формирование единого образовательного научно-инновационного пространства, к которому привлекать кафедры, научно-исследовательские лаборатории и малые инновационные предприятия, созданные с участием ученых кафедр, а также студентов, аспирантов и докторантов.

Обоснована необходимость формирования системы интенсивного образования человека на основе массовой переквалификации как за счет личных ресурсов человека, так и социальных инвестиций бизнес-групп, что позволит поддерживать непрерывный процесс «образование в течение жизни».

**Ключевые слова:** человеческий капитал, устойчивое развитие, сельские территории, расширенное воспроизводство, социально-экономические инструменты, образование, инновационная инфраструктура.



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