

Nikolay V. Malov

**THEORETICAL ASPECTS OF
INNOVATIVE AGRICULTURAL
DEVELOPMENT**

Hannover 2014

Nikolay V. Malov
Doctor of Economics

Theoretical aspects of innovative agricultural development

Sonderdruck aus
Hannoversches Jahrbuch
Band 6, 2014

Serie: Wirtschaftswissenschaft (Ökonomik)

*Unter Förderungen der Europäischen
Akademie der Naturwissenschaften e.V.*

Hannover 2014

Nikolay V. Malov, Doctor of Economics

Scientific paper: "Theoretical aspects of innovative agricultural development"

Academic Adviser:

Professor Vladimir Tyminskiy

Reviewers:

Professor A.Yu. Yegorov

Professor S.M. Pyastov

Professor A.L. Kurakov

Professor Wojciech Slomski

Germany, Hannover, 2014

Europäische Akademie der Naturwissenschaften Gegründet 2002

30161 Hannover

Husarenstr. 20

E-mail: vladimirt2007@googlemail.com

Vorstand und Beirat

Vorstand:

1. Vorsitzender Prof. Dr. V. Tyminskiy
2. Vorsitzender Prof. Dr. A. Gorbunov
3. Vorsitzender Prof. Dr. chem. R. Melik-Ohanjanian

Beirat

Prof. Dr. V. Tyminskiy

Prof. Dr. med. K Matkovski

Prof. Dr. B Rimantas

Table of Contents

Introduction	4
Non-classical factors of agricultural social and economic development	6
Development purposes of agricultural and industrial enterprise: similarity and differences	17
Conclusion	20
References	21

Theoretical aspects of innovative agricultural development

Introduction

Currently Russian agriculture is going through the critical time in its development. While different opinions concerning potential prospects are opposing with each other, actually, upon the World Trade Organization accession, prevailing the opinion that Russia should develop comparative advantages, make a part of value add chains, i.e. of the global division of labour. But there are other arguments that such settlement of the problem will result in decline in food security, in ecosystem disturbances and, as a whole, in the long-term will socially and economically unfavorable for Russia.

At the same time, setting aside the discussions on problems whether food and any other national markets are open or closed for international players, one can be sure that a strategic orientation on innovative development, at all events, is a competitive advantage of agriculture [5, 51].

However, in the course of clarification opinions how the innovative development in features of agriculture should be carried out, specialists are differ in their opinions. A great many of them, as a customary, emphasize technological tooling and retooling, so called intensive farm management which are leading to development of labor productivity, land capacity, but, in fact, to depletion of natural resources. In the last quarter of XX century the technologies of genetic engineering, which possible long-term effect is under-studied, spread.

Besides, from the beginning of XXI century a new development in the innovative paradigm arose. Attention of scientists and policies turned from scientific and technical complexes to innovation systems: national and regional [1, 9, 19]. But if until recently the concept of innovations usually applied in the context of industrial development, over the last two decades new versions of models of innovative processes in agriculture and models of agricultural innovative systems started appearing.

Generated prerequisites and necessity to develop operational concept of the innovative farming system made the grounds for timeliness of this research.

The logic reasoning looks like this. Within the context of formation of post-industrial society, new forms of the industrial management, including agricultural production, are arising. Observed phenomenon of industrial, agricultural and other types of development create conditions for doubts about conformity of conventional theories of production factors to new economic realities. In particular in properties and characteristic features "the ground" does not any more meet the traditional meaning which, for example, refers to inelastic supply of this factor.

Changes in the production function format because of changes of a function and characteristics of the production are result in changes of models and strategy of industrial and agro-industrial complexes management.

The other aspect of modeling strategies is related to the goal-setting which, in respect to agriculture, differs noticeably from the traditional monetary result maximization principle. The thesis worded by V.A.Yefimov, Rector of the St. Petersburg Agrarian University, that agro-industrial complex (AIC) is not only a sector of the national economy, but, as well, a tool for support, development of the country, settlement of population problems, assurance of territorial integrity of the state, is of particular relevance for Russia.

And in the face of current challenges to Russia both from West and from East, the idea to take a new national economy performance ratio of priority is fully justified and rational: it's high time to suggest population concentration (rate of residents on sq/km)¹ as a goal post in parallel to gross domestic product (GDP), living standards of population.

But, if in the agricultural sector efficiency of labor is coming to the forefront and is increasing, it results in decrease in the number of people working in the sector and, respectively, in the number of rural citizens (according to statistics, 98% of administrative regions of the Russian Federation are falling into the category of rural and mostly rural regions).

In the AIC system which formed in Russia the sizable enterprises (for some reasons which will be discussed later) are taking priority, but if we want to ensure future prosperity of the powerful country within its current borders, in our opinion this priority should be passed to small business (SB).

As the international practice shows, SB in the agricultural sector, as a part of any network, are acting rather efficiently, but, in turn, this demands of

¹ In the Russian Federation the average population density makes 8,4 head/km². The average population density on the Earth makes 42 head/km².

networks' participants to learn new roles and functions and a new capacity of the institutional environment.

This report covers development of these theses and definition of the essentials of the concept of agricultural innovative network.

Non-classical factors of agricultural social and economic development

While taking the view of agricultural development in Russia, as well as in any other country of the world, globalization contexts and, respectively, those factors of economic development which come to the fore under such conditions, should be taken into consideration. Principally, in the opinion of the majority of professionals in the sphere of economic development, today such processes are carrying out on the grounds of innovative paradigm. This thesis is the prime one in any national strategies and development programs for near-term, mid-term and long-term prospects.

"Programs 2020" are emphasizing the following challengers of innovative development [53]:

Acceleration of technological development of international economy and turn to 6th technological mode;

Higher competitive ability of innovative systems of developed and developing countries in comparison with economic systems of former modes;

Climate change, ageing of population, need to health care system modernization, food security.

When evaluating business situation in the innovative sphere all documents containing programs of action recognize that under many indicators, such as development levels of business, science, public services quality and environment, infrastructure development Russia is behind economically developed and too many developing countries.

Among challenges of innovative development "the Program 2020" singles out "Climate change, ageing of population, need to health care system modernization, food security". Need of "new technologies in agriculture" considers to be of the most important aspects for promotion competitiveness of the country. Weakness of theory ensuring of national economic policy in agriculture, shortage of efficient methods are obvious

on the mesoeconomics level as well as in macroeconomic consideration. Article 5, item 5 of the Federal law "About Agricultural Development" provides "development of science and innovative activity in agro-industrial complex" [35]; and "The National Program for agricultural development and regulation of agricultural commodities market, markets of raw materials and food products for the period 2013-2020" sets a task "to promote innovative activity and innovative development of agro-industrial complex" [13]. At the same time in practice these efforts bring about the results which can be characterized as novelties, "agro-novelties" [3], but not innovations according to the definition given by J. Schumpeter².

According to methods applied by Rosstat (Russian Federal State Statistics Service), innovation is "an end product of any innovative activity implemented in the form of any improved product (goods, work, service), productive process, marketing or organizational method in business, workplace arrangement, external links" [2].

The international standards in science and technology, which are known as "Oslo Manual", approved by the European Union in 1992 and ever-improving, apply the "Technology- Product-Process" concept for innovations. When collecting and analysis data OECD/Eurostat recommends to single out the following "types of innovations" [99]:

- technological (process, product);
- marketing;
- organizational;
- ecological;
- management;
- strategic;
- aesthetic.

As will be shown below, the results obtained in the innovative sphere of Russian agriculture, currently to a greater extent correspond to the 1st type of innovations, but for settling strategic challenges of agro-industrial sector development any strategic, organizational and management innovations are vital. Further we will try to present our proposals for settling this problem.

²J. Schumpeter defined innovation as a new combination of production factors created by entrepreneurship [66. Pages 169-170].

For to achieve this purpose, first of all it should be necessary to analyze experience of academic studies and practical application of the latest developments of innovative theory. Much to our regret, the majority of publications are dedicating to foreign experience, and our analysis we will begin with it.

According to recent works of Russian and foreign scientists [41, 91], the above mentioned shortcomings in innovative activity in agriculture, among other things are conditional on scarcity of economic development models which are resting upon traditional three-component structure of production factors: capital, work, ground. The last factor is of particular significance for agriculture. Experience of the modern economic structures shows facts and events which are breaking the older models and are to be re-thought. So, if in the societies of pre-industrialized time work in agriculture prevailed, in industrial society manufactory and factory labour met more frequently, in the post-industrial society the major part belongs to service industries.

Recent researches are stressing the importance of interchangeability among economic agents, social networking effects, survey of their structures and social interactions. According to this concept, social capital and innovations are naturally interconnected. Recent researches once again confirmed that social capital works not only as complimentary, but, at times in a way of, as substituting element for formal institutes of development; so, the social capital is of particular important for those countries where formal institutes are weak and have a low quality.

Innovations present a special mechanism by means of which the social capital can influence the development of agro-industrial sector. The structural social capital can stimulate innovations through extended flood of information and operating costs reduction. Interaction in networks can also lead to "joint actions effect" as it promotes a combination of various ideas or skills, and to "feasibility effect" because of enlarged access to various resources (including political or financial backing).

The cognitive social capital is of potential importance for innovations. Confidence, as a part of such resource, can increase general tendency to cooperation and to reduce operating costs (for example, preparation and conclusion of contracts and cost of consideration, protection of intellectual property rights and sales cost). Besides, rather high levels of confidence can

simplify for groups of people to maintain risks self-insurance. Availability of informal insurance tools as key elements of the social capital, is simplifying for certain farmers acceptance of (potentially risky) innovations. At last, it is easy to imagine, how general model can affect the decisions on innovation. Obviously, they will provide further insight into general tendency; will help to impel people into cooperation and to subordinate own interests to the public good.

But there are certain standards which can hinder innovations as well. For example, such standards as "good citizenship" or "subordination of standard practice" which are supporting conservatism and following stereotypes; can reduce innovational thinking and convert to making ready-made solutions. Besides, standards of certain scope of persons having common interests but these interests are in conflict with interests of wider community, can be harmful for development. Therefore any joint impact on innovations can be controversial.

Opinions relating relationship between social capital and level of innovations are developing. In current researches which are basing on vision of innovations as any transition from "any simple technical equipment" to any new, as a general principle, type of operating activity arrangement, the role of the social capital in acceptance of agricultural innovations for sampled farms is analyzing [41, 79, 90]. The purpose of the research is to specify the role of the social capital in processes of acceptance of agricultural innovations for a large sample of farms.

In the previous researches there were attempts "to set the price" of the social capital, to separate its various measurements [69, 32, 46, 97]. As it turned out, it is necessary to take into consideration differences between structural and cognitive social capital and between interconnecting and linking social capital. As it appears from the theoretical discussion, not all aspects of the social capital are contributed to innovations.

The key thesis is that the main goal of the agricultural production system in any country is not only satisfaction of basic needs of people related to the foodstuffs consumption, but supporting of so-called "safe development", generation and reprocessing of living environment of these people. Respectively, performance criteria of any agricultural enterprise, complex, region should be social and economic, representing this object in the complex of interactions with other difficult classes of objects.

According to scientists, traditionally the linear model of creation knowledge and transfer of technology dominated in visions of agricultural innovations [87, 101]. The agricultural knowledge has been generated in universities (agricultural and others), and later, by means of a state, any new knowledge has been spreading among farmers. This approach worked subject to the condition that technologies, developed by scientists, have been obtained due to getting optimum results in current understanding of the agricultural systems activity.

Even if the models of linear transfer of technologies were very successful as regards crops improvement and agricultural production [57, 86], criticism of limited attention to the problems of stability and discrepancy to the wider range of development goals, reflecting multiple functions of farms and agro-systems in rural regions has also increased [40, 89]. As answer to these questions, the system perspective became more and more popular. This approach is concentrating on the structure of innovative system, how various actors are communicating in its frameworks, and on potential barriers which can put a restraint upon its activity.

However in the scientific publications related to innovations in agriculture the problem of agency relations failed to be developed up till now, i.e. the problem of assessment the contribution of certain decisions and actions on macro level is still hidden, and scientists are calling to pay more attention to role functions of participants of interactions on micro level [87, 88]. It is necessary to investigate various roles and functions which actors should perform as they are maintaining business ties in innovations network, which is aiming not only change agricultural methods but changes the institutional context where these methods are applied.

The Transition Theory is dealing with the problems relating diffusion of local innovations beyond any local frameworks and actors, which are directly involved in their development, and the problems relating to wider systemic influences on the higher levels. In this theory the concept of multilevel perspective -MLP has been introduced; in this concept the systemic innovations are considered as a result of interactions of embedded systems acting on three different levels: 1) on micro level of marketplaces which is changing rather quickly; 2) stabilizing mechanisms of mesolevels; 3) on slowly changing macro level of "socio-technical background" [90. P. 118].

The multilevel perspective turned to be a popular concept applied for

.....
explanation the development and growth mechanism of appearing technology through interaction between actors within the marketplace and within the limits of socio-technical mode. However MLP is not absolutely indisputable. Very often it explains breakthrough of new technology by one or several shocks at "the background" level which force the existing mode to open and offer a chance at the niche level. Under these circumstances the major social changes takes place at the level of socio-technical background which has no direct influence on activity of certain actors.

The concept of network turned to be a rather new addition to the tools for research the agricultural innovative systems while the network of related actors remains in still an important parameter, it is of descriptive nature. Up till now the concept of network of agriculture extensively used in research as function of the position any farmer takes within any social network. These researches are simulating the technology transfer by analogy with spread of catching disease: the more people in the farmer's network use any new technology, the more reasons for the said farmer to be "infected" and to accept a new practice. One of inconveniences typical for these models is that they are depreciating any political measurement of technological development.

Actually, it is obvious that introduction of any new methods and new technologies will threaten to status quo and, as a result, it's often meets with opposition of institutes. No new knowledge and methods can be created in vacuum, but they depend also on the actors involved in their development [11, 74]. Because of political processes types of innovations and innovative processes can noticeable vary with time and in each region.

The economic situation necessitates the advancing development of the following directions of scientific researches and technological development in Russia: "pure" energy, genomic medicine, new technologies in agriculture, etc. [12, 53], however in Russia there are no any significant groundwork on many of these directions.

According to many specialists the key problems of the Russian Strategy of innovative development are:

- re-creation and development of human potential in science, education, technologies and innovations;

- immediate, multiple increase of innovative activity of business and dynamics generation of new innovative structures;
- support of the state in formation of favorable “innovative climate”, including creation of conditions and motivations for innovative activity, and favorable conditions for application innovations in all types of activity;
- formation of coherent, sustainably developing sector of research and advanced development;
- increase of transparency of national innovative system and economy, integration of Russia into systems of international cooperation and division of labor, i.e. in the systems of chains of added cost production [36].

In relevant interpretation the same tasks are projected on the situation in the Russian agriculture. As well as in the course of macroeconomic consideration, on the mesoeconomy level any shortcomings of theoretical supporting of the state economic policy in agriculture, lack of effective methods are obvious.

The matter is that the followers of three-component structure of production factors and any relevant models, even if with any subsequent improvements, for example, inclusions in the classical set any information, technology, business, can generate their assumptions and conclusions only within the liberal doctrine.

In this regard let us recall that already in *Traité d'économie politique* which J.-B. Say wrote in the form of “confabulations”, the author, considering possibility of intervention of any governor in certain spheres of economic life, specified the cases when such intervention can be useful and the cases when it cannot be reasoned. According to Say, the adverse effects of the governmental actions in economics is that “they are directing efforts of industry to productions not corresponding the needs of people and not profitable for producers” [54].

According to Say, any governmental intervention in economy can be justified only under the circumstances when the government, protecting interests of consumers, takes measures for improvement quality of the goods (for example, pharmaceutical) as it is difficult for the consumer to make sense of their quality.

Ideas of the French classic and any of his contemporaries- followers (B.-P.

Dunoyer, F.Bastiat, etc.) provided the basis for the French Economic School, and the concept of factors of production turned to be formalized to the fullest extent.

In recent researches of organizational structure new approaches are shown, among other things, in the aspect of social responsibility [77, 82]. The concept of social responsibility of commercial companies is gradually implementing in scientific and practice, though for Russia this subject is rather new. At the same time in many developed countries this concept has got both theoretical and practical meaning.

In this regard it is necessary to take into consideration some theoretical reasons concerning such categories, as institutes, social capital and human capital assets.

Institutes have both positive and negative effects which are showing up in various situations. They can be exclusive or intended for a wide society, repressive or releasing. As its best they provide the historically developed system of deterrents and oppositions which are defining the structure of civil society, limiting corruption, equalizing rights of players on the economy platform, generating possibilities for development.

Researches of institutes appeared in sociology and anthropology as of E. Durkheim. D. North, the Nobel Prize winner was the first economist who put institutes into scientific use of economic theories; he understood that markets are not "natural phenomena", but a complex of such coordinated rules, as rules of monetary circulation and transactional expenses. Respectively, he defined institutes as rules of game which reduce uncertainty in human interactions. According to O. Williamson, institutes are addressing to the group of deep-rooted standards and values, constitutions, legal framework and principles of regulation, policy, management and agreements reached in the course of negotiations, which are "institutionalizing" in various structures, networks, chains of creation of value and etc., and which are controlling individual behavior. It should not deny a role of any certain agency, but puts in the forefront "social2 in influence on the person.

As crises are spreading (banking and financial) it becomes clear that economy is short of institutes which are able to manage consequences of freed capitalism. The institutional approach assumes that institutes should render assistance to communities on different levels to act

efficiently and effectively. But various authors are warning against this implicit assumption.

So, some experts declare that many institutional contexts actually are a mixture of various pluralistic formal and informal institutes which are in opposition and promoting the interest of various groups of economic agents and those who are defending the power of the strong [80].

M. Grindle gives arguments against the approaches idealizing the role of the state and establishing universal standards for to “understand” organization of institutes (one rate for all) [84]. Instead of this she notices that those scientists who are working in the field of the theory of development, and practice increasingly covering the general subject of search of relevant answers for these problems in a certain context. In this new thinking, first of all, the context is analyzed, and standard restrictions are constantly developing, and, as experts with increasing frequency recognize, not description of final conditions is important but understanding of the development process. This outlook is stressing the importance to know the context through “contextually sensitive” analytics, the fact that informal institutes are as important as formal one, and importance of policy which is functioning as “a wrench” in works on creation of the design of innovative economy.

The specific question for any manager of innovative structure in agriculture is whether it is possible to change often unfriendly institutional conditions which are restricting innovative development of farms. As no institutes can be transferred as technologies, they should appear from any historical context.

Agricultural innovations are considered as an important factor of economic growth and development. However foreign observers notice that they are slowly spreading both among small farmers and in rather large-scale enterprises. Currently, as a general principle, the programs promoting acceptance of new technologies are failed, regardless of the fact that locally they may be rather successful. While many aspects of innovations failed to be properly understood, there are experts who assert that the important reason of limited impact of traditional research and economic development is simplified, but nevertheless dominating vision of innovative processes. Recent works are stressing relativity among economic agents, effects of social networks, studying of their structures and social interactions (for

example, [41, 58, 76, 98]). According to this concept, the social capital and innovations are naturally linked.

The modern economic theory identifies the social capital as a factor promoting growth and development. Positive effects of growth can be carried out by means of various channels, including reduction of operational expenses (in particular, it reduces necessity to draw up multipage contracts which would take into consideration all unexpected circumstances), free flow of information and growth of confidence (granting to communities possibilities to overcome any social problems). Experts assume that the social capital is a substitution of formal institutes of development, so, the social capital is of prime importance for the countries where formal institutes are weak and of low quality [77, 82].

The social capital is the sociological concept applying by sociologists with increasing frequency (founders of the theory: P. Bourdieu, 1986; J. Coleman, 1988; R. Putnam, 1993). While the exact definition of the social capital is a subject of debates, many analysts are considering this category as a special feature of local agricultural communities and are describing it in the context of confidence and institutional standards. Such approach makes it possible formally describe any collective action.

There are elements of such approach in papers of F. Fukuyama who considered confidence to be the key concept for the category of social capital. Within the frameworks of such approach confidence is "expectation". And this expectation arises within a certain group, in the course of any joint working basing, as a rule, on any general ideas, standards approved by other members of the group. Social standards have influence on preferences of people and set restrictions, the lower operational costs, simplifying exchange of information and allow the communities to settle any social problems and problems of coordination of economic interactions. This measurement of the social capital is usually mentioned as "the cognitive social capital".

But the category of social capital covers the area exceeding simply institutional agreements. Some analysts are stressing the role of formal and informal networks – the measurement which is usually called as "structural social capital".

There are two forms of such structural social capital: interconnecting and linking social capital. The interconnecting capital shows the level of

horizontal links among people with similar qualities, for example, quality of relations in the group of countrymen. On the contrary, the linking capital is addressing to communications by means and through groups. Often such communications are vertical, for example, relations among government, its officials and farmers.

In Russia the importance of this category is admitting as well, but implicitly, on managerial level. So, the departmental special-purpose program "On development of agricultural cooperation for 2014-2016" includes in factors hindering development of cooperation of farm operators: "lack of bank credits availability"; "lack of qualified personnel and mechanism for their search, training and allocation"; "poor awareness of country people about advantages of cooperation"; «low level of legal culture in the country"; "high level of mistrust of population to any founded structures" [10]. As we can see, these data are taking into consideration as a part of social capital. It is necessary to address to international experience for to fasten the methodical component of the state policy in agro-industrial complex.

How the social capital can be measured? The structural social capital usually is defined quantitatively through supervision the activity of networks making a part of a group of people or organization. The cognitive social capital has been analyzed in the works organized, among other things, under the global research of world values (World Value Survey). In certain cases the social capital has been measured in field experiments, this format is applying for to measure confidence (for example, trust games), altruism (dictator games), ability to coordinate cooperation, to manage, to supervise any free-rider (voluntary contribution games).

Analytical results and experimental data can be used as data for certain measurements of the social capital. Alternatively such data can be used as input variables in statistical studies aimed for disclosure of major factors of the social capital.

For example, as those six measures of the social capital based on analysis of the factor executed on 20 separate indicators are used. These six factors cover general confidence and networks, institutional trust, standards of assistance and decency, standards of active social participation, standards of accuracy and civil participation.

Besides definition the quantity of the social capital analytics should try to connect it with economic behavior or results.

With a certain share of convention it is possible to assume that taking into consideration special features of agricultural organization, first of all any managerial, ecological, and then any other types of innovations for their development should be based on sufficient volume of the resources which is called a social capital. And today this resource is in urgent need for the Russian agriculture as just it through innovations can provide steady and safety development of agro-industrial sector.

Development purposes of agricultural and industrial enterprise: similarity and differences

The enterprise management system is defined by its type. The purposes of a large agricultural enterprise, on the one hand, and, for example, of a family farm, on another, may differ, and it will determine the particular production characteristics in every case. For a variety of causes specified in monographs behavior of an agricultural enterprise in comparison with industrial one appears to be more traditional than rational one.

The modern economy, nevertheless, makes new demands to a target-setting and, respectively, to the control systems. In turn, change of principles of such systems makes call for transformations.

But, as the centuries-old history of transformations in agriculture may show, it is connected with many problems among which the following ones may be primarily specified: social and economic differentiation; aggravation of contradictions between requirements of efficiency growth applicable to the activity of agrarian and industrial enterprises and need for balance with safety of development and preservation of environmental conditions [4, 8, 15, 56].

The agricultural enterprises of the developed countries make attempts under the conditions of globalization to use more modern management methods, such as the specialized quality management system (Total Quality Management), often coming into use in the global food chains, controlling and some other ones [6, 28, 77]. However it is connected in many cases with substantial changes, including those in flow processes, in the systems of interactions with external partners and in coordination inside the agricultural organizations.

Within the meaning of modern theoretical concepts, such transformations can be called as innovations, by classifying them, for example, as a type of organizational innovations. Changes and innovative development of management systems do obviously demand considerable investments into the human capital, into creation of so-called innovative abilities.

Coming back to the base thesis of this work, we will note importance of creation and reproduction of habitat of the people employed in agricultural production. Need for implementing the quality changes into agriculture of Russia at the end of the XXth century was explained by need for reformation of economy, and special aspects of the period – by transition to a post-industrial society. Transformations made have resulted in an aggravation of problems of social and economic differentiation of the agricultural enterprises; in an aggravation of contradictions between the requirement of efficiency growth applicable to the activity of agrarian sector and need for preservation of environmental balance and conditions for safe development of territories.

According to official figures, the scale of output of agricultural products fell by one half in 2010 in comparison with an indicator for 1990.

Good sign is that in the period from 2000 to 2008 the scale of output of agricultural products grew threefold expressed in monetary terms. The production index of the Russian agriculture made as a whole about 84% in 2008 compared with the level of 1990. However the independent evaluation of changes in the livestock of cattle, production of potatoes, vegetables and meat gives rise to doubts in reliability of official calculations.

Indicator values of wheat yield and also those of grain and leguminous crops in Russia turn out to be unsatisfactory ones in comparison with indicator values of other countries. Here, obviously, one can see a backlog in application of intensive land use factors (fertilizers, progressive methods), and also a lag in financing granted for research and development.

Let's note that the problem of a choice of development strategy for the Russian agriculture took a special place among "transition period" problems. More than a decade of reforming efforts gave a chance to test practically all known organizational and production management models in the country; however the optimum choice is still far from final definition, even in spite of the fact that the final membership in WTO became essential argument in favor of a liberal model.

Development of a complex scenario for development of an agricultural enterprise is a difficult task already because many issues of the institutional organization of the outer environment of the enterprise are still far from their decision. So issues connected with the relations of a property and the market for land still represent for Russia a difficult problem, both social and economic, environmental and even a civilizational one.

The modified system of land use and the land tenure, providing the adequate productions organization, standards of environmental management which could prevent pollution and degradation of lands should take precedence of the solution of this problem irrespective of the fact within what economic ways the economic activity is conducted.

A special value in an institutional context is gained, for example, by the specificity of assets causing dependence of agricultural production productivity from strategy implemented in this branch by the state and large economic agents [57, 61]. It is impossible to do under these conditions in design of activity of an agricultural enterprise and strategic management without use of a scenario approach within which frame institutional factors of innovative development are to be investigated.

It is possible to conclude from this, in particular, that predetermination of development of farms is a rather difficult and long process. Meanwhile it is difficult to predict its development and to define a social niche this way will take up.

It also should be noted that development of small business patterns in the Russian areas and regions goes non-uniformly caused both by natural and institutional conditions.

In the coming years under condition of preservation of the actual vector of a state policy collective forms of business patterns (joint-stock, cooperative, state, etc. ones) will prevail in the country.

In the works dealing with the study of agricultural production both in imperial and in Soviet Russia it was shown, that the former socialist one, and the present experience of development of agro-production testifies that progressive development is driven by the strong farms and with support of medium-sized ones [20, 30, 46, 48, 49, 57].

However the strategy for spatially oriented extensive development of agriculture in Russia, most likely does not meet the present-day-requirements to the right degree. The implementation of new strategy

should be accompanied by transition to a complex, diversified, socially focused and not just to agricultural development of rural areas. Local communities in rural areas should be anew organized; they should learn to create new values of their life.

Conclusion

The review of native and foreign scientific papers allowed revealing two main approaches to solution to the problem of small farming enterprises efficiency improvement:

- 1) Relatively successful one: efforts concentration on export grain crops production;
- 2) Another one, not always effective approach: concentration on food production by means of advance of new technologies.

Thus it turns out to be that earlier approved (during the food problem settlement in Asia in the 1950s) linear technologies transfer models are showing today a lack of effect. As a result of the studies carried out in Africa in accordance with the program "Convergences of Sciences: Strengthening of Innovative Systems (CoS-SIS)", the reasons for failures of innovative projects implementation in agriculture were mapped and the ways of solving the problems of efficiency improvement of small forms of agro-industrial systems have been found.

Following the results of the work done a new understanding of the social capital functions in a context of rural innovations has been gained. It enables to draw a conclusion that innovations do represent a special arrangement by which the social capital can influence the agro-industrial sector's development. The structured social capital can stimulate innovations through expansion of information flows and operational expenses reduction. Networks interaction can also results in the "joint actions effect" as it promotes various ideas or skills to be combined and also in the "feasibility effect" because of enlarged access to various resources (political or financial support including).

More obvious is the role of the social capital in adoption of agricultural technologies and methods coming into existence at a certain stage of process of technological innovations. Thus, a connection between various forms of the social capital and parameters of the processes of creation of

a certain type of knowledge (the knowledge embodied in production methods, in the innovative resources selection options at innovative process inputs) has been established. A factor of use of such knowledge is quite often mixed up with a set of other factors such as efficiency of the markets of resources at the input and other arrangements resources providing, price incentives in the finished goods markets etc.

According to the study data the levels of innovative development are "falling into line" with the levels of the social capital. A direct connection of the social capital with adoption of agricultural innovations is shown in the work. It suggests a way for "price definitions" for the social capital by distinction of three dimensions: informative social capital and two forms of the structured social capital (connection and communications).

These results are of importance for conducting the policy, too. First of all, the structural and cognitive social capital exerts a positive influence on agriculture development by promoting adoption of innovations. Assistance being duly rendered in time (for example, through the innovative projects) promotes innovations and development. But a certain type of the social capital, such as patterns of communications, can make difficulties to the adoption of innovations.

In connection with the above matter another one innovation becomes obviously essential: the effectiveness evaluation system for the innovative projects to be implemented in the rural area should be amended. The profit should no longer be the decisive criterion. Alternatively a number of people pro hectare rate (pro one sq.km rate) can be proposed. Then production potential rates, quality of life rates should follow.

Building up the basic provisions of a "rural innovative system" concept which, allegedly, will differ on many parameters from a national innovative system (NIS) in its current representation is apparently defined as a problem of a follow-up study. "The rural innovative system" should become in the long term a NIS subsystem along with the "industrial innovative system".

References

1. Abramchuk I.N., Pyastolov S. M., Safronov A.A. *Knowledge Management Models in the Innovative Organizations//Innovative Economy.* – 2011. – No. 3. – pp. 63-69.
2. Agarkov S. A., Kuznetsova E.S., Gryaznova M. O. *Innovative Management and*

State Innovative Policy: A Learning Guide. – M.: Academya Yestestvoznaniya, 2011.

3. *Agricultural Innovations.* – 2013. – No. 2 (29).

4. Anfimov A.M. *Country Economy of the European Russia. 1881–1904.* – M.: Nauka, 1980.

5. Auzañ A., Satarov G. *Priorities of Institutional Transformations under the Conditions of Economic Modernization//Voprosy Ekonomiky.* – 2012. – No. 6. – pp. 65-73.

6. Belkin S. V., Kotov E.S. *Assessment of International Level of Innovations and Innovative Activity Management [Electronic resource]//Actual Problems of Modern Management: Conference proceedings of International Distance scientific and practical conference (June 15, 2010).* – URL: http://sibac.info/files/2010_06_15_Manag/Sekciya%203/Belkin.pdf

7. *Big Problems of the "Small" Agrarians.* – URL: http://nashavlast.ru/article_description/103/899.html.

8. Buzdalov I. *Experience of Agrarian Reforming in the East European Countries//APK: Ekonomika, Upravleniye.* – 1992. – No. 10. – pp. 39-48.

9. Warsawsky A.E. *Problems and Development Indicators of Innovative Systems//An Innovative way of Development for the New Russia / Managing editor: V.P. Goreglyad.* – M.: Nauka, 2005.

10. "On development of Agricultural Cooperation for 2014-2016" - A Special-Purpose Departmental Program [Electronic resource]. – URL: http://www.agronews.ru/rubric_176.

11. Vishnevsky V., Dementyev V. *Innovations, Institutes and Evolution//Voprosy Ekonomiky.* – 2010. – No. 9. – pp. 41-62.

12. Glazyev S. Yu. *Strategy and the Concept of Social and Economic Development of Russia before 2020: An Economic Study [Electronic resource].* – URL: http://www.glazev.ru/econom_polit/2420.

13. *State Program for Agricultural Development and Regulation of the Agricultural Commodities, Raw Materials and the Food Markets for the Period of 2013–2020 / Ministry of Agriculture of the Russian Federation.* – M., 2012.

14. Gritsay O.V., Ioffe G. V., Treyvish A.I. *The Center and the Periphery in Regional Development.* – M.: Kaluga, 1991. – 167 pages.

15. Gudkov L., Dubin B. *Rural Life: Rationality of Passive Adaptation [Electronic resource]//polit.ru: a web-site.* – URL: <http://polit.ru/article/2003/01/22/577747>.

16. Deynenko V., Toporov D. *Social Development of the Rural Areas: Problems, Tendencies//APK: Ekonomika, Upravleniye.* – 2000. – No. 5. – Pp. 21-30.

17. *Debt Noose: A Russia-wide Problem of the Farmers.* – URL: <http://newsland.com/news/detail/id/727398>.

18. Dyumulen I.I. *International Trade: Economy, Policy, Practice / All- Russian Foreign Trade Academy*. – M., 2010. – 448 pages.
19. Egorov A.Yu. *Innovative Direction of Development as a Basis of Social and Economic Progress//Economic world history: In 6 volumes / Composite Authors; Under the General Editorship of M. V. Konotopov*. – Volume 6, book 2. *Essays on the Economic Theory*. – M.: KNORUS, 2012. – Pp. 345-484.
20. Zablyuk R. *Ownership Forms of and Economic Recovery of Russia//Economist*. – 1995. – No. 7. – pp. 72-78.
21. Ivanter V. V., Kuzyk B. N. *Future of Russia: An Inertial Development or Innovative Breakthrough?* – M.: Institute Ekonomicheskych Strategiy, 2005. – 144 pages.
22. *Science Indicators: 2013: A Statistical Compendium*. – M.: NIU "VShE", 2013.
23. *Innovative Development: Economy, Intellectual Resources, Knowledge Management / Under the Editorship of B.Z. Milner* – M.: INFRA-M, 2010. – 624 pages.
24. Kalugina Z.I. *Paradoxes of the Agrarian Reform in Russia: A Sociological analysis of the Transformational Processes*. – 2nd Edition. – Novosibirsk: IEiOPP SO RAN, 2001. – 196 pages.
25. *Krestyanskiye Vedomosti: A WEB-site*. – URL: <http://www.agronews.ru>.
26. Kudrov V. *International Economic Comparison and Innovative Development Problems*. – M.: Yustitsinform, 2011. – 616 pages.
27. Logunov I.V. *Special Aspects of Formation of Russian Farmers' Mentality (based on the Proceedings on the Central Chernozem Region)//Problemy Razvitiya Territoriy*. – 2013. – Number 3 (65). – pp. 124-129.
28. Mayer E. *Controlling as a Thinking and Management System: Translated from German*. – M.: FIS. 1993.
29. Maksakovsky V.P. *Geographical World View*. – Book I. *General Characteristic of the World*. – M.: Drofa, 2006.
30. Medovy A.E. *Institutional Transformations in the Agrarian Sector of Russia [Electronic resource]// Issledovano v Rossii: An Electronic Scientific Magazine*. – 2006. – Vol. 9. – URL: <http://zhurnal.ape.relarn.ru/articles/2006/189.pdf>.
31. Melnikov A.G. *Steps on the Land: A Peasant's Notebook*. – Volgograd: Isdatel, 2006. – 400 pages.
32. Morozov T.V. *Rural Communities of Russia Regionally Measured*. – M.: Moscow obchestvenny nauchny fond, 2008. – 238 pages.
33. Nefedov T.G. *Social and economic and spatial self-organizing in rural areas// the World of Russia*. – 2003. – No. 3. – pp. 35-61.
34. Nikulin A. *Chayanov's Version of Collectivization//Otechestvennye Sapisky*. – 2004. – No. 1.

35. *On the Agriculture Development: The Federal Law dated 12/29/2006 No. 264-FZ [Electronic resource]. – Access granted via the ConsultantPlus Reference and Law System.*
36. *Bases of Policy of the Russian Federation in the Field of Science and Technologies Development for the Period before 2020 and for the Further Prospect: A Draft [Electronic Resource]. – URL: <http://www.uiec.ru/news/0/7788.html>.*
37. *Assessment of Social and Economic Consequences of Russia's Accession to the World Trade Organization / Under the Editorship of R. S. Grinberg. – M.: Ekonomika, 2007.*
38. *Patsiorkovskiy V.V. Rural Russia: 1991-2001 – M.: Financy I Statistika, 2003. – 368 pages.*
39. *Protopopova L.I. Importance of Innovative Activity in Agricultural Development of the Kursk Region [Electronic Resource]// Rossijskoye Predprinimatelstvo. – 2010. – No. 8, Number 1 (164). – pp. 147-150. – URL: <http://www.creativeconomy.ru/articles/10784>.*
40. *Pyastolov S. M. A Learning Household: Outlines of Institutional Behavior Pattern. – M.: Paleotip, 2005. – 208 pages.*
41. *Pyastolov S. M. The Organization of Scientific Researches and Dissemination of Knowledge in Agriculture//Socialnye i humanitarnyye nauki, otechestvennaya i sarubeshnaya literatura. Series 8. – 2013. – No. 2.*
42. *Development of Science and Technologies for 2013-2020. A State Program of the Russian Federation: The Order of the Government of the Russian Federation dated 12/20/2012 No. of 2433-r [Electronic Resource]. – Access granted via the ConsultantPlus Reference and Law System.*
43. *Rogalina Ya. Agrarian Reforms in Russia during 1910-1920 //Voprosy Ekonomiki. – 2011. – No. 8. – pp. 131-142.*
44. *Figures and facts on the Russian Reforms [Electronic Resource]. – URL: <http://kaivg.narod.ru>.*
45. *Russia. 2013: A Statistical Compendium. / Rosstat. – M., 2013. – 62 pages.*
46. *Rylko D. New Agricultural Operators, Production Goods Market and Vertical Synergy //The Productive Factors Markets in Agricultural and Industrial Complex of Russia: The Analysis Prospects: Scientific Conference Proceedings. (Golitsyno, July 6-7, 2001). – M.: IEPP, 2002. – pp. 49-78.*
47. *St. Petersburg State Agricultural University: A WEB-Site. – URL: <http://spbgau.ru>.*
48. *Serova E., Karlov N., Petrichenko V. Russia: The Market of Purchased Production Goods for Agriculture. – M.: IEPP, 2001. – 188 pages.*
49. *Stalin I. On the Issues on Agrarian Policy in the USSR: A Speech at the Agrarian*

- Marxists Conference held on December 27, 1929//Stalin I.V. Works in 16 Volumes. – M.: Gos. Isd-vo polit. lit., 1949. – Vol. 12.
50. Stalin I. On a Grain Front: From a Talk with Students of the Red Professorate Institute, Komakademiya and Sverdlovsk university held on May 28, 1928//Stalin I.V. Works in 16 Volumes. – M.: Gos. Isd-vo polit. lit., 1949. – Vol. 11.
51. The shorthand notes of speech of the Vladimir Putin, Prime minister of Russia, held on January 31, 2012 in Tambov at the Meeting dedicated to livestock production development [Electronic Resource]. – URL: http://gov.cap.ru/info.aspx?gov_id=16&id=1338671&type=news.
52. Stiglitz J., Ellermann D. Macro - and Microeconomic Strategy for Russia [Electronic Resource]//Informal web-page of Joseph Stiglitz, the Nobel Prize Winner, Statistics for 2000 – URL: <http://rusref.nm.ru/stigpp.htm>.
53. Strategy of Innovative Development of the Russian Federation for the Period before 2020: The Order of the Government of the Russian Federation dated December 8, 2011. No. 2227-r [Electronic Resource]. – Access granted via the ConsultantPlus Reference and Law System.
54. Say, Jean-Baptiste. *Traité d'économie politique ou simple exposition de la manière dont se forment, se distribuent et se composent les richesses. A Tractate Composed Based on Experiences and being Useful to any Estate by the herein Shown Benefits that on can Get in his Situation from his Talents: Translated from French.* – SPb., 1816. – pp. 169.
55. Tracey M. *Food and Agriculture in a Market Economy: An Introduction to Theory, Practice and Policy: Translated from English* – S.Pb.: *Economicheskaya Schkola*, 1995. – 431 pages.
56. Tyunen I. *The isolated State in its Relation to Agriculture and National Economy. A Study on Influence of the Grain Prices, Soil Productivity and Overhead Costs on Agriculture.* – M., 1926.
57. Uzun V. Ya. *Big Agricultural Business in Russia: Trends and Development Problems* [Electronic resource]//Bulletin of the Analytical Center of Agrarian and Food Economy. – 2003. – No. 2 (16). – URL: <http://www.strana-oz.ru/?numid=16&article=768>.
58. Ushachev I.G. *Building Up Rational Control Systems in Agrarian and Industrial Complex.* – M.: *Economika I Informatika*, 1999. – 368 pages.
59. *A Farmer has Obtained no Credit*// *Rossijskaya Gazeta.* – 2012. – November, 27 – URL: <http://www.rg.ru/2012/11/27/reg-cfo/farmer.html>.
60. Hicks J.R. *A Theory of Economic History: Translated from English / General Editorship and Prolusion: R. M. Nureev* – M.: NP "Journal Voprosy Ekonomiki", 2003. – 234 pages.
61. Hramova I.G. *Vertical Cooperation in the Farming Sector of Russia (Activity of*

- Agricultural Holding Companies). – M.: IEPP, 2003. – 52 pages.
62. Chayanov A.V. *On the question of the Noncapitalistic Economy Systems Theory* // Chayanov A.V. *Farming: Selected works*. – M., 1989. – pp. 114-143.
63. Chayanov A.V. *Farming: Selected works*. – M., 1989.
64. Tchernyshev I.V. *The (Peasant) community after November 9, 1906* – Pg.: 1917.
65. Churakov V. Ya. *Crisis of the Russian Village: Realities and Forecast*. – M.: RGATiZ, 2000. – 303 pages.
66. Schumpeter Y. *The Theory of Economic Development*. – M.: Progress, 1982.
67. *Knowledge-Based Economy: Institutes and Organizations: Collection of Research Papers*. / RAN. INION. Center for Scientific and Information Studies on Science, Education and Technologies; Publishing Editor: S. M. Pyastolov. – M., 2013. – 188 pages.
68. *Economy of Russian Civilization* / Compiled by: O.A. Platonov. – M: Rodnik, 1995.
69. *Economic Behavior and Social Exclusion on a Rural Labor Market: A Project Report* / Kalugin Z.I., Trotskovsky A.Ya., Rodionova L.V., etc. [Electronic resource]. – Barnaul, 2003. – URL: <http://www.strana-oz.ru/?numid=16&article=772>.
70. Adusie E.O., Norton G.W. *The Magnitude of Agricultural Maintenance Research*//*Journal of Production Agriculture*. – 1990. – No. 3 (1). – pp. 1-6.
71. *Agriculture at a Crossroads, Global Report*. IAASTD/Ed. by B.D. McIntyre, H.R. Herren, J. Wakhungu et al. – Washington: Island Press, 2009.
72. *Awakening Africa's Sleeping Giant: Prospects for Commercial Agriculture in the Guinea Savannah Zone*//*World Bank Report*. – 2009. – Issue 48, June.
73. Baas H.J.A, van Potten A.J., Zwanenberg A.C.M. *The World of Food Retailing: Developments and Strategies*/Rabobank International – Utrecht, 1998.
74. Blundo G., Olivier de Sardan J.P. *Everyday Corruption and the State. Citizens and Public Officials in Africa*. – L.: Zed Books, 2006.
75. Bojnec S., Swinnen J.F.M. *Agricultural Privatization and Farm Restructuring in Slovenia*//*Agricultural Privatization, Land Reform and Farm Restructuring in Central and Eastern Europe* / Ed. by J.F.M. Swinnen, A. Buckwell, E. Mathijs. – Aldershot: Ashgate, 1997. – P. 281-310.
76. Bowler I. "Sustainable Agriculture" as an Alternative Path of Farm Business Development//*Contemporary Rural Systems in Transition*/Ed. by I.R. Bowler, C.R. Bryant, M.D. Nellis. Vol. 1. *Agriculture and Environment*. CAB International. – Wallingford, 1992. – P. 237-253.
77. CGIAR: Consultative Group on International Agricultural Research. – URL: <http://www.cgiar.org>.
78. Ciaian P., Swinnen J.E.M. *Land market imperfections and agricultural policy impacts in the New EU Member States: A Partial Equilibrium Analysis*//*American*

Journal of Agricultural Economics. – 2009. – Vol. 88, No. 4. – P. 799-815.

79. Cleaver F. *Development Through Bricolage: Rethinking Institutions for Natural Resource Management*. – L.: Earthscan/Routledge, 2012.

80. Cleaver F. *Reinventing institutions: bricolage and the social embeddedness of natural resource management*//*The European Journal of Development Research*. – 2002. – No. 14 (2). – P. 11-30.

81. Cochrane W. *Farm Prices, Myth and Reality*. – Minneapolis: Univ. of Minnesota Press, 1958. – P. 85-107.

82. CoS-SIS: *Convergence of sciences: Strengthening Innovation Systems (CoS-SIS)*. – URL: <http://www.cos-sis.org/open/ShowPp..aspx?Pp.Id=2>.

83. FAO – *Food and Agriculture Organization of the United Nations*. – URL: www.fao.org.

84. Grindle M. *Governance reform: new analytics of next steps*. *Governance: An International Journal of Policy//Administration and Institutions*. – 2011. – No. 24 (3). – pp. 415-418.

85. *Handbook of Agricultural Economics*/Ed. by R. Evenson, P. Pingali. – URL: <http://ideas.repec.org/s/eee/hagchp.html>.

86. Harris J.R., Todaro M. *Migration, Unemployment and Development: Two-sector Analysis*//*American Economic Review*. – 1970. – Vol. 60. – P. 126-142.

87. Hermans F., Stuiver M., Beers P.J., Kok K. *The distribution of roles and functions for upscaling and outscaling innovations in agricultural innovation systems*//*Agricultural Systems*. – 2013. – No. 115. – P. 117-128

88. Isaac M.E. *Agricultural information exchange and organizational ties: The effect of network topology on managing agrodiversity*//*Agricultural Systems*. – 2012. – No. 109. – pp. 9-15.

89. Isaac M.E. *Agricultural information exchange and organizational ties: The effect of network topology on managing agrodiversity*//*Agricultural Systems*. – 2012. – No. 109. – pp. 9-15.

90. Jiggins J. *Diagnostic research in support of innovation*//*NJAS: Wageningen Journal of Life Sciences*. – 2012. – No. 60-63. – pp. 115-121

91. Johnson D.G. *World Agriculture in Disarray*. – L.: Macmillan Press Ltd., 1991.

92. Karlseña K.M., Dreyera B., Olsena P., Elvevoll E.O. *Literature review: Does a common theoretical framework to implement food traceability exist?*//*Food Control*. – 2013. – No. 32. – pp. 409-417.

93. Mathijs E., Swinnen J. *Production Organization and Efficiency during Transition: An Empirical Analyses of East German Agriculture*//*Review of Economics and Statistics*. – 2001. – No. 83. – pp. 100-107.

94. Poland, *The Functioning of Labor, Land and Financial Markets: Opportunities and Constraints for Farming Sector Restructuring*//*World Bank Report*. – 2001. – Dec.

95. *Proposed Standard Practice for Surveys of Research and Experimental Development: Frascati Manual/Organization for economic co-operation and development.* – Paris, 2002. – 254 pages.
96. Prosterman R.L., L. Rolfes, Jr. *Review of the Legal Basis for Agricultural Land Markets in Lithuania, Poland and Romania//Structural Change in the Farming Sectors in Central and Eastern Europe: Lessons for the EU Accession: Second World Bank/FAO Workshop (June 27-29, 1999)/Ed. by C. Csaki, Z. Lerman.* – Washington: World Bank, 1999. – P. 110-139.
97. Rijn F., BULTE E., ADEKUNLE A. *Social capital and agricultural innovation in Sub-Saharan Africa//Agricultural Systems.* – 2012.–No. 108. – pp. 112-122.
98. Röling N.G., Wagemakers M.A.E. *Social Learning for Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty.* – Cambridge: Cambridge University Press, 1998.
99. *Science, technology and skills/Pardey P., Alston J., James J. et al.//Background Paper for the World Development Report 2008/World Bank.* – Washington, 2007.
100. Swain N. *Agricultural Restitution and Co-operative Transformation in the Czech Republic, Hungary and Slovakia//Europe-Asia Studies.* – 1999. – No. 51. – pp. 1199-1219.
101. Tracy M. *Agricultural Policy in the European Union and Other Market Economics.* – 2th ed. – Brussels, 1997.
102. USAID: *The United States Agency for International Development*– URL: <http://www.usaid.gov>.
103. USDA: *Department of agriculture of the USA.* – URL: www.usda.gov.
104. <http://www.cos-sis.org/open/ShowPp..aspx?Pp.Id=2>
105. Malov N. V. *Innovative Systems in Agriculture. M.:* IAEP Publishing House, 2013-120 pages.



Nikolay V. Malov