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Conceptual bases for the formation of an effective investment policy of business entities in the agricultural business of Russia

V Sinyavin¹, T Yanina² and A Podrezov^{2*}

¹ Penza State University, 40 Krasnaya str., Penza 440026 Russia

² All-Russian Research Institute of the Organization of Production, Labor and Management in Agriculture, 15 Orenburgskaya str., Moscow 111621 Russia

E-mail: padre70@mail.ru

Abstract. The article considers the sequence of actions proposed by the authors in the framework of planning and subsequent practical implementation of the concept of investment policy of regional economic entities operating in the field of agricultural production. Most agricultural producers in the regions of the Russian Federation face the problem of lack of financial resources. At the same time, the insufficient level of economic efficiency makes them investment unattractive, which prevents the inflow of investor capitals. According to the authors, the concept of a universal (acceptable regardless of industry sector and scale of activity) investment policy that provides for such actions by the management of an economic entity that would help to find hidden corporate reserves, increase productivity and investment attractiveness is able to reverse the current situation. The formation of a similar concept was stated as the purpose of the study. The novelty of the research is determined by the algorithm of formation and implementation of the concept of an effective investment policy of regional agricultural producers.

1. Introduction

Timely and sufficient production of agricultural products is the basis of the country's food security. Ensuring the sustainable development of the agrarian business, in this regard, should be a priority task of the federal and regional economic and political elites [9]. Such development involves the attraction of extensive investment funds – as a source of financing for technical re-equipment, expansion of production, organization of capacious marketing channels, etc. [3].

Improving the regional investment policy aimed at increasing the efficiency and investment attractiveness of enterprises, industries, socio-economic systems of the region is the primary task in enhancing investment activity, transferring the Russian economy to a sustainable investment path of development [8]. At the same time, special attention should be paid to improving the efficiency of work of the subjects of the territorially-organized economic system, i.e. economic enterprises [11].

For the Russian producers who have been confronted during the years of market reforms with a fall in the level of production, a decrease in labor productivity, a high degree of depreciation of fixed assets, and the increasing extensiveness of many industries, the problem of increasing efficiency is highlighted in the highest degree (in the framework of implementing the measures aimed at improving the regional investment policy) [2].



Increasing the effectiveness of the functioning of the subjects of a territorially-organized economic system, as is known, is the most important strategic goal of economic activity [6]. At the same time, attracting investment funds, which are so necessary for modernizing the industrial sectors in the regions, restoring worn out fixed assets, reducing the share of inefficient unsupported (manual) labor in favor of embodied labor, is possible under the conditions of efficient production and increasing investment attractiveness, the achievement of which can be considered as the main result of the practical implementation of the investment policy of the subjects of the territorially-organized economic system [16].

2. Theory

According to some authors, the tasks facing the agrarian sector of Russia can be comparable in scale and cost to the tasks solved by the Russian government eight decades ago at the end of the civil war. According to the estimates of specialists, only for launching idle production capacities (their partial renewal), approximately \$ 250 billion are needed. Moreover, bringing the production capacity to the level of Western peers requires more than \$2-3 trillion; according to the optimistic scenario, the recovery period will take 10-20 years. Moreover, the average annual need for real investment will be \$150-300 billion [12]. At the same time, S. M. Vasin draws attention to the fact that at the present time, the heads of regional socio-economic systems often consider the construction of new objects of large business as inexpedient (because of high labor intensity and long-term payback). At the same time, small business, in the opinion of the same author, “is, mainly due to the imperfection of Russian legislation, developing at a slow pace and mainly in the field of trade and services” [7].

Most of the specialists are similar in opinion that investments in the technical re-equipment of regional agricultural production are directed mainly at the expense of own funds (depreciation), in some cases through bank loans and leasing operations, as well as funds from the Federal Target Programs [4]. The figures show that in the structure of investments in fixed capital by sources of financing, the own funds of enterprises amount to 40.7% (including depreciation – 9.8%), budget funds – 29.0% [1].

In many farms, there is a reduction in acreage. Under conditions of intensification of agriculture, this circumstance would not cause concern. However, in the conditions of a sharp drop in the quality of sowing material and a decrease in the power supply and technical equipment of farms, it indirectly indicates, first of all, a reduction in production (confirmed statistically) [19]. In many farms, the collection of corn for silage, the production of green fodder and fodder (primarily fodder root crops) have decreased. The consequence of a reduction in the feed base of livestock was a decrease in livestock numbers [20].

Zootechnical, breeding work, the work of veterinary services are also at an unacceptably unsatisfactory level. Namely, there is no monitoring of milk production and identification (based on it) of highly productive breeds followed by the formation of pedigree herd; the artificial breeding of cattle has almost completely stopped by the producers (which leads to the weakening of rocks and loss of productivity) [18].

The only way out of this situation (besides elementary restoring the order and eliminating mismanagement) should be the holding of extensive investment injections [15]. Most experts are unanimous, stating that “... the competitiveness of a region is directly dependent on the possibility of attracting domestic and foreign investors to implement programs for locating and territorially organizing productive forces, on the degree of favorable investment climate” [5].

It is considered to be that the possibilities of state investments through the federal budget are extremely limited and, in the opinion of most experts, the rate should be made on private investments, both domestic and foreign, for the influx of which a high level of investment attractiveness is needed [17]. At the same time, managers of regional enterprises (very limited in funds) are not able to use and fully use the existing hidden potential, which (with proper management) can serve as the basis for the growth of economic efficiency and investment attractiveness. In this connection, the formation of the

concept of building a promising investment policy that is capable of identifying the growth of efficiency and investment attractiveness by identifying hidden reserves in terms of using basic production factors is in high demand [14].

In recent years, studies have increasingly noted that the achievement of high and stable results of the functioning of Russia was more likely if its constituent entities would develop according to a strategy of maximizing the potential of their own territory, including resource and innovation opportunities [10].

3. Methods

This study was based on such methods as interviews, questionnaires, and expert surveys, correlation and regression analysis. Interviewing specialists (theorists and practitioners of investment in the agrarian sector of the Russian regions) revealed a list of factors that are of paramount importance to the level of economic efficiency and investment attractiveness of investment objects.

A questionnaire survey of employees selected for research of enterprises provided an opportunity to get a point estimate of the level of practical use of these factors. An expert survey (as experts were heads and specialists of the same business entities) allowed rating the importance of factors (also in points).

Correlation and regression analysis revealed the connections of the variables studied and made it possible to construct mathematical models of the detected dependencies. Through it, the correlation coefficients were calculated, which were also confirmed by the Student's coefficient. Student coefficients in excess of the table values indicated that the correlation was valid, which allowed to proceed to the regression analysis. Its result is the two-factor regression models, within which the dependence of Y (dependent factor) on X (influence factor) is demonstrated. Models of the detected dependencies are linear and represent the equations of a straight line obtained from the conditions for minimizing the sum of squares of deviations measured along the Y axis:

$$Y = A_0 + A_1 \times X$$

The study was carried out in accordance with the provisions of the systems approach, based on its basic principles, including:

- Integrity (assumes consideration of the object under study as a whole);
- Hierarchy (the presence of a number of coordinated elements);
- Structuring (in which the analysis of individual elements of the system under study is carried out taking into account the specificity of a particular structure);
- Multiplicity (simultaneous use of a number of alternative approaches and research methods to describe both the system as a whole and its individual elements).

The use of a systematic approach predetermined using the decomposition methods, which allowed identifying key factors in the development of regional production in the management system of subjects of a geographically organized economic system.

4. Results

The proposed concept was the result of research conducted in the period of 2013-2015 in farms of seven districts of the Penza region (Kuznetsky, Maloserdobinsky, Penza, Sosnovoborsky, Kameshkirsky, Vadinsky, Lopatinsky districts). The obtained indicators of the actual level of use of factors, as well as the rating values of their importance, were used to calculate the values of the actual and maximum possible efficiency of their use. Calculations were carried out using the author's method:

$$\Phi_n = A_n \times B_n, \text{ where} \tag{1}$$

A_n – the actual use of the n -th factor;

B_n – an expert assessment of the importance of the n -th factor (according to the assessment scale);

Φ_n – the effectiveness of using the n -th factor.

A basic statistical analysis using the method of correlation and regression analysis revealed a strong positive correlation between the level of efficiency of using the factors limiting the socio-economic development of an economic entity and the level of efficiency with a delay of influence (depending on factors) at one and two years (Figure 1). Moreover, in all cases there was an indirect effect through the level of using factors of a higher level (let's call them secondary factors).

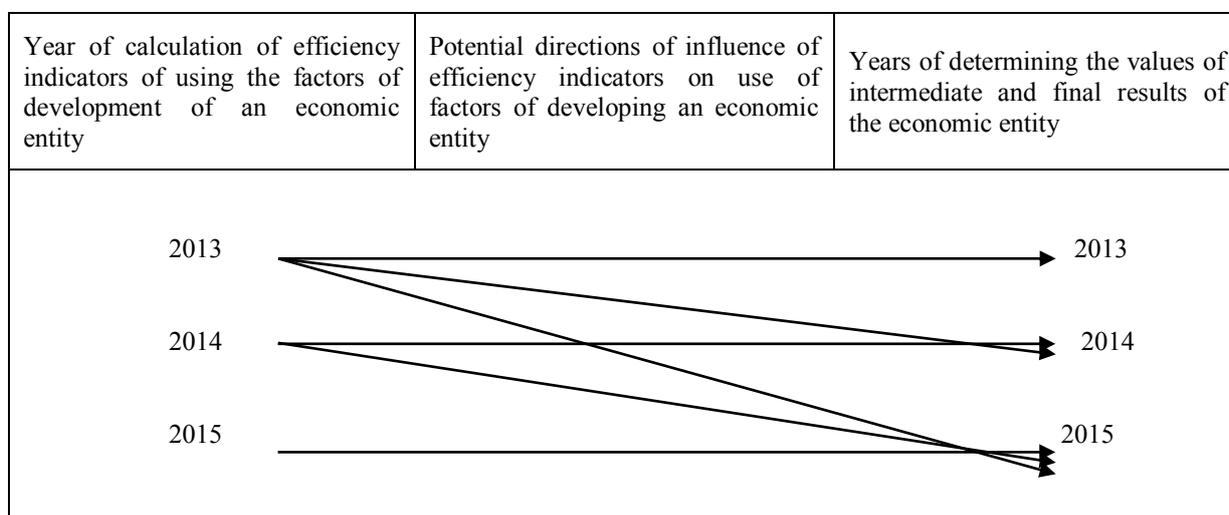


Figure 1. Areas of influence of the effectiveness of using the development factors of business entities on the performance of their work by year.

Such a system of dependencies formed the basis for building a predictive model that allows calculating promising results of an economic entity in terms of growth to the maximum possible level of efficiency of using secondary factors, as well as recommended values of efficiency of using primary factors that can lead to the achievement in practice of the maximum level of efficiency. At the same time, managerial actions should be aimed at increasing the efficiency of using primary factors to ensure achievement of the desired results.

For example, let's consider the dependence of profitability on the effectiveness of using the factor "the use of agricultural machinery".

The correlation coefficient of the 2013–2015 dependence is 0.85, the t -criterion is 3.52, which exceeds the table value indicating a significant difference from zero of the found correlation coefficient. The dependency is represented by a model:

$$Y = - 100,66 + 25,79xX, \text{ where}$$

Y – profitability, 2015; X – actual efficiency of using the agricultural equipment, 2013.

The method of correlation and regression analysis has been established: the level of efficiency in the use of agricultural machinery is determined by the efficiency indicators of using technical preparedness of managers and specialists of the studied agricultural enterprises. Thus, the actual efficiency of using the agricultural machinery in 2015 is dependent on the indicators of the actual effectiveness of using the technical training of managers and specialists in 2013. The Dependency

Model: Y – the actual efficiency of the use of agricultural machinery, 2015, X – the actual effectiveness of using technical preparedness of managers and specialists of agricultural enterprises, 2013.

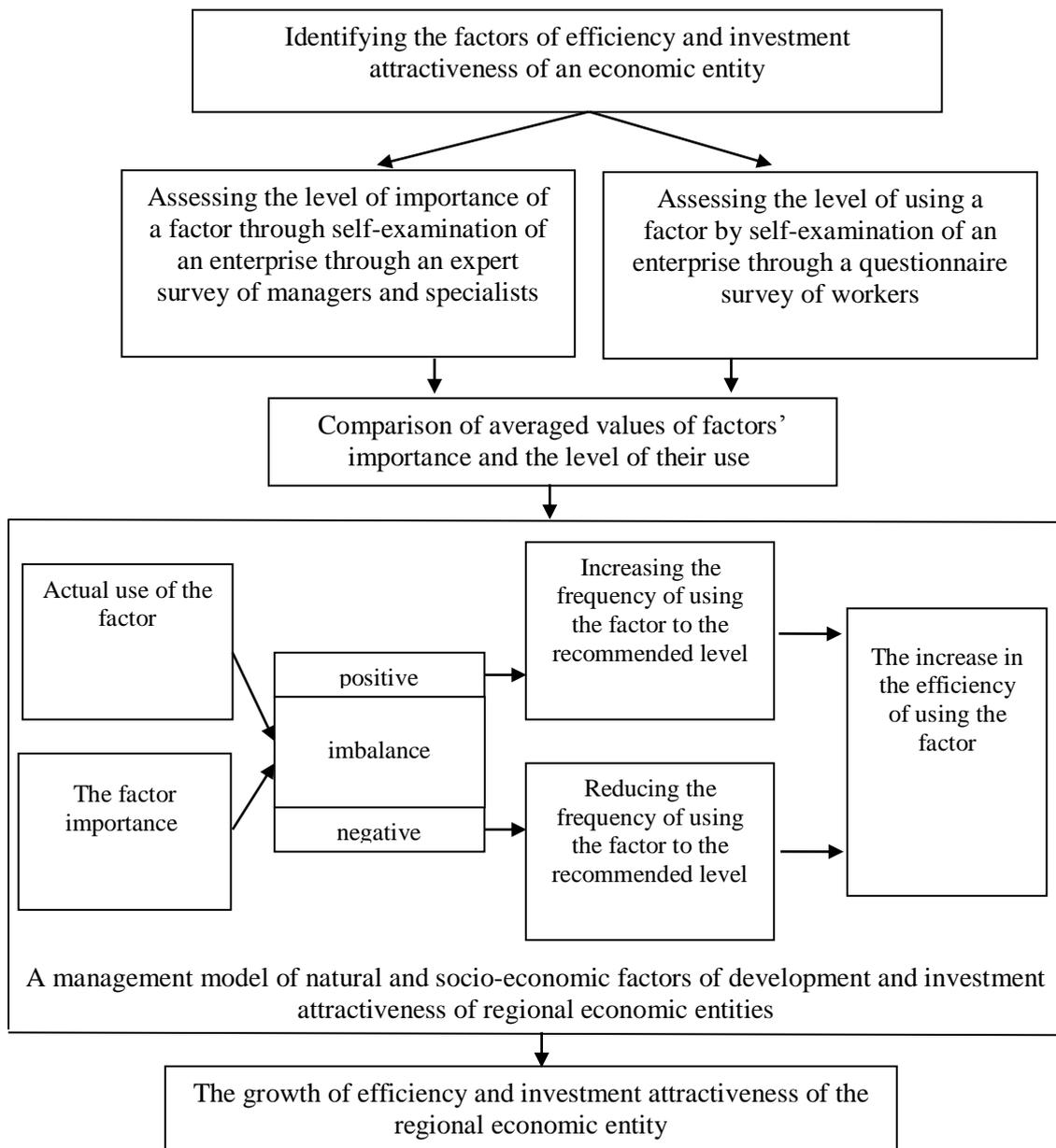


Figure 2. The algorithm for implementing the universal concept of investment policy of regional enterprises.

The long-term nature of dependence is also explained by the presence of a time interval from the moment of increasing the efficiency of using technical preparedness of managers and specialists of agricultural enterprises (which can manifest itself in the development of new production programs related to the use of agricultural equipment, the modernization of existing machinery with the subsequent transfer of technology to new types of work) up to the implementation and occurrence of a positive effect.

To establish the level of efficiency in using managers and specialists' technical preparedness necessary for the practical achievement of the highest possible efficiency in the use of agricultural equipment (6.8 points according to the calculations), we turn to the regression dependence model:

$$X = \frac{6,8 - 0,7857}{0,8636},$$

where: 6,8 – the maximum possible efficiency of using the agricultural machinery (points); X – the effectiveness of using the technical training of managers and specialists.

From the calculations it follows that the practical achievement by business entities of the maximum possible efficiency in the use of agricultural machinery requires an increase up to 6.96 points in the efficiency of using technical readiness of managers and specialists.

The profitability expected at the onset of two years after the increase (to the maximum possible) of the efficiency of the use of agricultural machinery will be determined using the model of regression dependence:

$$Y = - 73,4 + 18,05x6,8, \text{ where}$$

where: Y – profitability; 6,8 – the maximum possible efficiency of using agricultural machinery (points).

As follows from the calculations, the fact that the farms practically achieve the maximum possible efficiency of using agricultural equipment leads to an increase in profitability up to 49.3%, which more than doubles the maximum actual value (in the farms of the Kuznetsk district) and is tens of times higher than the other studied areas.

5. Discussion

The main theoretical and practical research provisions were reported at the XII All-Russian Scientific and Practical Conference “Improving the Organization's Management System in Modern Conditions” (Penza, 2015), at the XVII All-Russian Economic Conference of Young Scientists and Students “Territorial Competitiveness” (Ekaterinburg, 2015), and at the VII International Scientific and Practical Conference “Economics and Management of the National Economy” (Penza, 2015).

5.1. Theoretical conclusions

The research and discussions that took place during the discussion of the results allow us to present the concept of a promising investment policy of regional agricultural producers, which has the following key distinctive features:

- First, its main focus is the activities aimed at increasing investment attractiveness;
- Second, this activity is characterized by minimal cost, since it relies on the self-examination of a regional enterprise and on the search for existing undisclosed internal reserves.

The first stage of the proposed action algorithm for implementing the concept of a promising investment policy is the compilation of a register of factors that influence the level of economic efficiency and investment attractiveness of an economic entity (Figure 2). Such an analysis can lead the leadership/management of a particular enterprise.

In our opinion, the formation of this set of factors should be carried out taking into account both natural and socio-economic features. Next, an expert survey of managers and specialists of the enterprise and a questionnaire survey of its employees should establish the level of importance and the actual use of factors.

Averaged values should be compared by applying a sequence of actions in accordance with the universal model of managing development factors and the investment attractiveness of regional enterprises developed by us. Thus, this model should be a backbone element of the proposed concept.

The essence of the model is to correlate the values of the importance and practical use of factors, which would allow to speak about the existence of a positive or negative imbalance.

A positive imbalance (exceeding the indicator of importance over the indicators measuring the use of factors) requires measures to increase the frequency of its use (greater focus on this factor), a negative imbalance demands a decrease in the frequency of using the factor.

It should be noted that in order to simplify and adapt to the prevailing management conditions, we refused from actions related to establishing the actual and maximum possible efficiency of using factors in the proposed algorithm, since the initial values for its calculation rely on the data of relative importance and frequency of its use. We already act as reliable reference points for managers of an economic entity [13, 21].

6. Conclusion

The given scheme is universal and acceptable for the analysis and subsequent development of the measures aimed at increasing the efficiency of using both natural and socio-economic factors.

An early calculation of the indicators of actual use and importance of the factor would allow the management of an regional economic entity to assess the scale of upcoming activities, which are aimed at improving the efficiency of its use (taking into account the necessary resource base), to start developing concrete measures that, ultimately, should be expressed in the increasing efficiency of using the factors, as well as in the increasing efficiency of the whole enterprise and, as a result, its investment attractiveness.

To achieve the predicted values, the authors proposed measures of managerial influence on the initial factor of influence. So, in order to effectively use managers and specialists with technical preparedness in existing industries, to strengthen the motivational bases of their work, individual coefficients were proposed for calculating the main part of remuneration: from 0.1 to 1.5 for high-quality timely work, for trouble-free operation, as well as for the speedy and quality repair of the entrusted equipment (from 0.5 to 1).

In addition, in order to transfer practical skills and mastery to young specialists, we offered to introduce a mentoring institute in the studied farms with more experienced and qualified employees. Managers and specialists exercising mentoring over young personnel (depending on the number of people) in calculating the main part of remuneration are encouraged to use individual increase factors from 0.5 to 1. The sufficiently high rates are explained by the socio-economic purpose of the institute of mentoring.

The developed recommendations in 2016 as an experiment were introduced into the practice of the studied farms. The results, which, according to forecasts, should be reflected in the growth of profitability, will be reported in subsequent publications.

References

- [1] Baronin S A, Kazeykin V S, Nikolaeva E L, Chernykh A G and Androsov A N 2016 *Problems and trends in the housing construction in Russia* (Moscow, Russia: INFRA-M) p 239
- [2] Baronin S A and Kulakov K Y 2016 Development of the municipal market of land plot auctions for housing construction in Russia *Journal of Applied Economic Sciences* **11**(4) pp 698-708
- [3] Borisova V D 2012 Socially significant investments as a stage of post-crisis development of enterprises *Scientific Review* **3** pp 435-443
- [4] Borisova V D 2012 Determination of the role of the state in the economic development of the country *News of the Penza State Pedagogical University named after V. G. Belinsky* **28** pp 235-238

- [5] Budilovskaya O A and Bazhenova T L 2011 Investment attractiveness of the region and methods for its evaluation *Bulletin of Orenburg State University* **13**(132) pp 67-73
- [6] Vasin S M and Pleshakova N A 2013 Imbalance of social and economic development of the region: measurement issues and the problem of contradiction *Regional Economy: Theory and Practice* **19** pp 38-45
- [7] Vasin S M 2013 Problems of strategic planning of development of territories *Management Sciences* **2**(7) pp 84-89
- [8] Volodin V M, Rozhkova L V and Skvortsova V A 2015 National economic interests and ensuring the economic security of Russia *News of the Highest Educational Institutions. Volga Region. Social Sciences* **4**(36) pp 210-218
- [9] Klimova N V and Kochieva J S 2015 Development of far eastern federal district as a national priority of economic growth of the xxi century *Polythematic Online Scientific Journal of Kuban State Agrarian University* **105**(01) pp 788-803
- [10] Cremades J and Wang J M 2014 Policy support, economic incentives and the adoption of irrigation technology in China R Cremades, J Wang, J Morris *Earth System Dynamics Discussions* **5**(2) pp 1543-1570
- [11] Kozlov M P and Yanina T F 2016 Improving the mechanism for implementing the doctrine of food security in Russia, taking into account the potential of small producers *Economics of Agricultural and Processing Enterprises* **4** pp 19-26
- [12] Riemer M I, Kasatov A D and Matienko N N 2009 Economic Assessment of Investments (SPb,Russia: Peter) p 416
- [13] Sinyavin V Yu and Isachenko S N 2016 Stimulation of increasing the investment attractiveness of agricultural production and labor *Rationing and Wages in Agriculture* **5** pp 55-62
- [14] Sinyavin V Yu 2012 Investment climate as a factor in the growth of its investment activity in Russia and the regions *News of the Penza State Pedagogical University named after V. G. Belinsky* **28** pp 540-543
- [15] Skvortsova V A and Skvortsov A O 2015 The evolution of capital in the process of the general evolution of the socio-economic system *News of Higher Educational Institutions. Volga region. Social Sciences* **2**(34) pp 216-224
- [16] Chernetsova N S 2015 Modernization of the economic system: factors, levels, mechanisms, tools *Symbol of Science* **11-1** pp 183-186
- [17] Chernetsova N S and Nikulina T B 2012 Economic interests and institutions *News of the Penza State Pedagogical University named after V. G. Belinsky* **28** pp 609-611
- [18] Yunyaeva R R and Klemanova I V 2012 Investment attractiveness of the region as a factor in the additional income of monetary means to the development of agriculture *News of the Penza State Pedagogical University named after V. G. Belinsky* **28** pp 639-646
- [19] Yanina T F 2015 Analysis of the resource potential of private farms in the Penza region and the conditions for interaction with agricultural organizations. Regional features of market socio-economic systems (structures) and their legal support *Collection of materials of the VIth International Scientific Practical Conference* (Moscow, Russia: University named after S. Y. Witte branch of Penza) pp 337-342
- [20] Yanina T F and Ananyev M A 2015 Problems of using the resource potential of private farms in the food supply system *Economics of Agricultural and Processing Enterprises* **5** pp 50-54
- [21] Semenova E I and Domrachev A S 2014 Evaluation of social and economic efficiency in agriculture *Economics of Agriculture of Russia* **12** pp 63-68