

METHODOLOGY FOR STUDYING ECONOMIC EVALUATION OF INNOVATIVE TERRITORIAL DEVELOPMENT OF AGRICULTURAL COMPLEX IN ENTREPRENEURSHIP EDUCATION

**Milyausha Lukyanova, Federal State Budgetary Educational Establishment of
Higher Education, Bashkir State Agrarian University**

**Vitaliy Kovshov, Federal State Budgetary Educational Establishment of
Higher Education, Bashkir State Agrarian University**

**Rasul Gusmanov, Federal State Budgetary Educational Establishment of
Higher Education, Bashkir State Agrarian University**

**Vasily Lukyanov, Federal State Budgetary Educational Establishment of
Higher Education, Bashkir State Agrarian University**

**Oleg Efimov, Federal State Budgetary Educational Establishment of Higher
Education, Bashkir State Agrarian University**

**Irek Araslanbaev, Federal State Budgetary Educational Establishment of
Higher Education, Bashkir State Agrarian University**

ABSTRACT

In entrepreneurship education is one of the fundamental approaches to the strategy design for sustainable agricultural development is a differentiated approach to the choice of program activities and ways to implement them. Innovative entrepreneurship is of great importance in the economy modernization and is one of the strategic priorities of each country. This approach is explained by the heterogeneity of rural areas, and, consequently, the inequality of the initial conditions. Based on the example of the Republic of Bashkortostan, optimal forecasts of the strategic development of the agro-industrial complex have been developed and substantiated, the role of which in entrepreneurship education is very important, as in the implementation of the development strategy, the correct assessment of the types and degree of risks associated with the management decisions implementation comes to the fore. It allows to model future situations, as well as compare the effectiveness of implemented strategies.

To determine the strategic potential for the effective agro-industrial sub-complex development the analysis was made in all categories farms of the Republic of Bashkortostan. The developed forecast scenarios, reflecting qualitatively heterogeneous directions for development of the agrarian sector, are formed, taking into account the achievement of the strategic goal and the potential capabilities of the production structures. It makes possible to define strategic objectives for further development of enterprises and combine them into a single industry development strategy. The developed approach is recommended to be used as a guide to build long-term regional programs for the development of agriculture, as well as to adjust the activities of ongoing programs. The method of forecasting changes results is used in

entrepreneurship education as a technological element in solving the education modernization problems and as the promotion way of innovations in education.

Keywords: Agro-Industrial Complex, Economic Efficiency, Forecast, Strategic Potential, Sub-Region, Territorial Development, Entrepreneurship Education.

INTRODUCTION

Systematic analysis of the state of research of the problem by scientific and methodological literature, legal framework gave reason to recognize one of the priorities of modern economic education the need to prepare a competitive specialist, ready for the implementation of their professional functions and constant professional self-improvement. Contradictions of the modern organization of the educational process and market needs can be resolved by strengthening the practical training of future economists on the basis of a competent approach.

Business activity in an educational context helps students become more flexible, self-confident, and independent, learn to make decisions, plan, be more creative, solve problems, navigate situations, interact with partners, have more social skills, information about entrepreneurship, and learn how to manage projects and processes. Business education should be applied in order to quickly understand the business process. This allows acquiring the necessary skills and master tools in a short period of time. Entrepreneurship education is increasingly in demand in Russia. The percentage of small and medium businesses in Russia's gross domestic product is about 20%, while in the USA this figure is 50%, in China – more than 60%, in Europe 65-70%.

The model of entrepreneurship education for the formation of the professional competence of future economists in the process of practical training, based on the principles of systematic and consistent, competence, difficulty, practical orientation, professional self-development and individualization, provides for the use of competent, systematic and practice-oriented approaches (Logosha et al., 2019).

Currently, there is a heightened interest of the scientific community to the problems of strategic planning of the development of spatial territorial systems. The analysis of domestic and foreign experience of modern scientific economic studies shows the obvious priority of the fundamental goal to find out ways to improve the strategic planning of socio-economic development of rural areas as a mechanism to manage the competitiveness of rural municipalities.

In modern conditions, new scientific approaches and provisions are necessary to provide a methodological basis of strategic planning for the development of rural areas. In this regard, in-depth theoretical consideration, methodological justification and practical support to form strategic plans for socio-economic development of rural areas are required (Kovshov et al., 2017; Černevičiūtė et al., 2019).

Issues of farmland territorial management and natural resources are considered at the global level, that play an important role in reducing the vulnerability of rural population to certain risks as well as increasing crop yields. Although the aspects studied are sometimes considered in opposition to each other, many of the methods used to achieve one goal provide co-benefits to the other one. These problems were analyzed by examining the voluntary use of

farm lands by farmers in the Bugisu sub-region in Eastern Uganda (Sullivan-Wiley & Short Gianotti, 2018).

The study analyses the most pertinent business legislation, to identify legal dispositions, national, and international ones, that deals with the income concept. This research highpoint the Spanish practice in the process of economic concepts' business national laws incorporation. States can see Spain's knowledge. It keeps them resources and time. (Aldeia, 2019).

New solutions are needed to harmonize food production and preserve the environment. The focus is on identifying synergies and compromise between agricultural potential and ecosystem conditions in the Northern Iberian Peninsula region in order to improve soil use efficiency. The presented methodology allows identifying the most suitable areas to develop new agricultural activities with higher efficiency (Onaindia et al., 2018).

Using mathematical modeling frameworks, a dynamic, multi-criteria optimization model was used to explore a range of agricultural growth ways combined with climate change adaptation strategies to achieve agricultural development and environmental goals. The research tool consisted of three main components: 1) land evaluation, including evaluation of available resources, land suitability, crop productivity and costs; 2) development of scenarios based on political views and development plans; 3) land use optimization in the form of linear programming models (Dunnett et al., 2018; Lukmanov et al., 2018, Faridi & Sulphay, 2019).

In an uncertain socio-economic and climatic context, sustainable agriculture is a major challenge for both farmers and their agricultural advisers. Therefore, French researchers paid a special attention to the development of tools to support decision-making being useful for the development and assessment of new production strategies in accordance with the sustainability of farms and environmental protection (Hammouda et al., 2018).

There are studies conducted by economists on the livestock industry growth in East Africa in terms of the area occupied and key risk factors found by the stochastic Monte Carlo simulation to determine the risk-adjusted economic indicators (Lukuyu et al., 2019).

The development of territorial and spatial planning is a critical issue. Although a number of territorial and spatial strategies aimed at farm production development are gradually gaining international consensus, their actual applicability is still contested. The field of information and communication technologies is rarely paid relevant regard while drawing up documents on strategic development of municipal entities (Carrincazeaux & Gaschet, 2015; Calabrò & Cassalia, 2018; Cortinovis et al., 2019; Marcianò & Romeo, 2018).

The aim of the research is a strategic scenario forecasting and planning working-out of the agro-industrial complex development of the region, based on the assessment of territorial potential as the way of promoting innovation in entrepreneurship education.

The research hypothesis is as follows: the scenario method to evaluate strategic and innovative territorial agricultural complex development will allow applying differentiated approaches to the state support of agriculture reasonably.

This will allow defining a variable set of measures to develop recommendations for increasing efficiency of entrepreneurship education at the regional level in order to improve business community stability from the external factors impact.

MATERIALS AND METHODS

The data of the Russian Federal State Statistics Service, the Territorial Federal State Statistics Service in the Republic of Bashkortostan, the information provided by the municipal districts of the Republic of Bashkortostan in the context of agricultural enterprises, the results of the given research and other data (Order of the Government of the Republic of Bashkortostan, 2016; Resolution of the Government of the Russian Federation, 2018) served as the information base of the study.

The following methods, that form professional entrepreneurial competencies in the research process through the design and strategic activities of students, were used:

1. Calculation and design. It is used to characterize modern phenomena and processes that determine the level of agro-industrial production in the Republic of Bashkortostan as well as to identify the power of the established patterns between them and the development of scientifically-based directions for the development of agro-industrial complex of the Republic of Bashkortostan in the future;
2. The scenario method is based on working out scenarios to advance agro-industrial production, covering all possible ways to realize internal potential and the impact of external conditions.
3. Economic-mathematical and statistical methods. It includes a system of techniques, ways and methods aimed at the study of quantitative laws, manifested in the structure and dynamics of agricultural production in the Republic of Bashkortostan. Such statistical methods as the method of grouping economic indicators on a territorial basis, absolute and relative indicators (coefficients, percent), average values, and time series are used.

RESULTS

By applying existing entrepreneurial competencies in education, it is possible to identify the relationship with the quality of entrepreneurial activity in the agro-industrial complex. The proposed forecasting method for students in the implementation of their knowledge, skills and abilities allows not only to make forecasts, but also to analyze them for making certain management decisions (Rubin et al., 2019).

The forecast of medium-and long-term development of agriculture should include four priority strategic directions:

- Development of crop production industries: development of grain crop production, intensified production of field and greenhouse vegetables.
- Development of animal breeding industries: development of dairy cattle breeding, increasing production of meat in poultry industry and cattle breeding.

With the strategic potential for the efficient long-term development of agribusiness in the Republic of Bashkortostan, namely production of 6.6 million tons of grain, 6.0 million centner of field and greenhouse vegetables, 514.5 thousand tons of cattle and poultry for slaughter (in live weight), 203.4 thousand tons of milk, there is a way for further cooperation with developed countries. In 2018, compared to 2017, investments in fixed assets increased by 1.4 times (from 6.9 billion RUB to 9.7 billion RUB). To date, 52 investment projects with a total cost of 103 billion RUB and 5 thousand jobs are being implemented and planned for realization. There are also projects involving foreign companies:

- Germany (EkoNiva): Construction of 4 dairy complexes for 15400 cows (232 million euros/17.4 billion RUB/500 jobs);

- Italy (Gruppo Cremonini): Construction of feedlots for 21 thousand heads of beef cattle (40 million euros/2.6 billion RUB/700 jobs);
- France (Groupe Savencia Saveurs and Spécialités): Production of soft and hard cheeses (30 million euros/2.0 billion RUB/50 jobs).

In General, in 2017 the Republic of Bashkortostan produced agricultural products for the sum of 157.3 billion RUB in all categories of farms that is by 74.5% higher than in 2010. In 2017, the largest share in the total structure of agricultural production belonged to the western (30.2%), then to the southern (23.8%) and the central (19.3%) sub-regions (Federal State Statistics Service, 2018).

Thus, in agriculture in general, as well as in animal breeding and crop production, the main development centers are the western, southern and central sub-regions, where 73.3% of the gross agricultural product is produced.

The importance of the grain market is determined by its leading role in the development of food resources of the country, the presence and diversity of inter-sectoral relations.

Efficiency increase of vegetable production is influenced by a set of factors, with productivity, cost and price playing the greatest role. Consumer demand for most of the vegetable products is almost completely satisfied by domestic production, heat-loving vegetable crops are imported from other regions.

Table 1 PREDICTED VALUES OF CROP PRODUCTION IN FARMS OF ALL CATEGORIES FOR THE MEDIUM AND LONG TERM IN THE REPUBLIC OF BASHKORTOSTAN, THOUSAND TONS								
Years	In the Republic	Sub-regions						
		Western	Northwestern	Northeastern	Northern	Ural	Central	Southern
Grain								
2010	781.0	255.6	103.2	68.7	14.2	37.6	154.2	147.4
2015	3005.4	1070.0	265.4	123.2	48.4	281.3	403.2	813.7
2020	4562.6	1632.9	397.7	189.2	73.6	468.9	541.9	1258.4
2025	5903.8	2093.9	548.5	256.4	105.5	654.5	696.8	1548.2
2030	6644.8	2354.9	599.4	323.5	137.3	740.0	751.7	1738.0
Openfiled and greenhouse vegetables								
2010	2542.4	1099.5	154.6	38.4	52.2	95.4	757.9	344.4
2015	3662.5	1204.0	197.4	134.7	113.1	206.0	1129.5	677.8
2020	4368.0	1320.6	226.7	188.6	169.7	266.5	1354.3	841.6
2025	5208.0	1485.1	258.3	244.8	221.0	332.7	1624.2	1042.0
2030	6048.0	1649.5	289.9	301.0	272.3	398.8	1894.2	1242.4

According to the calculations on the extensive-intensive development scenario, the following results were obtained in terms of production in all categories of farms of the Republic of Bashkortostan (Table 1, Figure 1 and Figure 2):

Grain Crops

- For the middle-term perspective (2018–2025): 5.9 million tons for the Bashkortostan Republic, including sub-regions: western–2.1 million tons, northwestern–0.5 million tons, northeastern–0.3 million t, northern–0.1 million tons, Ural–0.7 million tons, central–0.7 million tons, southern–1.5 million tons.
- For the long-term perspective (2018–2030): 6.6 million tons for the Bashkortostan Republic, including sub-regions: western–2.4 million tons, northwestern–0.6 million tons, northeastern–0.3 million tons, northern–0.1 million tons, Ural–0.7 million tons, central–0.8 million tons, southern–1.7 million tons.

Open Field and Greenhouse Vegetables

- For the middle-term perspective (2018–2025): 5.2 million tons for the Bashkortostan Republic, including sub-regions: western-1.5 million tons, northwestern-0.3 million tons, northeastern–0.2 million tons, northern-0.2 million tons, Ural–0.4 million centners, central–1.6 million tons, southern-1.0 million centners.
- For the long-term perspective (2018–2030): 6.0 million tons for the Bashkortostan Republic, including sub-regions: western–1.6 million tons, northwestern–0.3 million tons, northeastern–0.3 million tons, northern–0.3 million tons, Ural–0.4 million centners, central–1.9 million tons, southern–1.2 million centners.

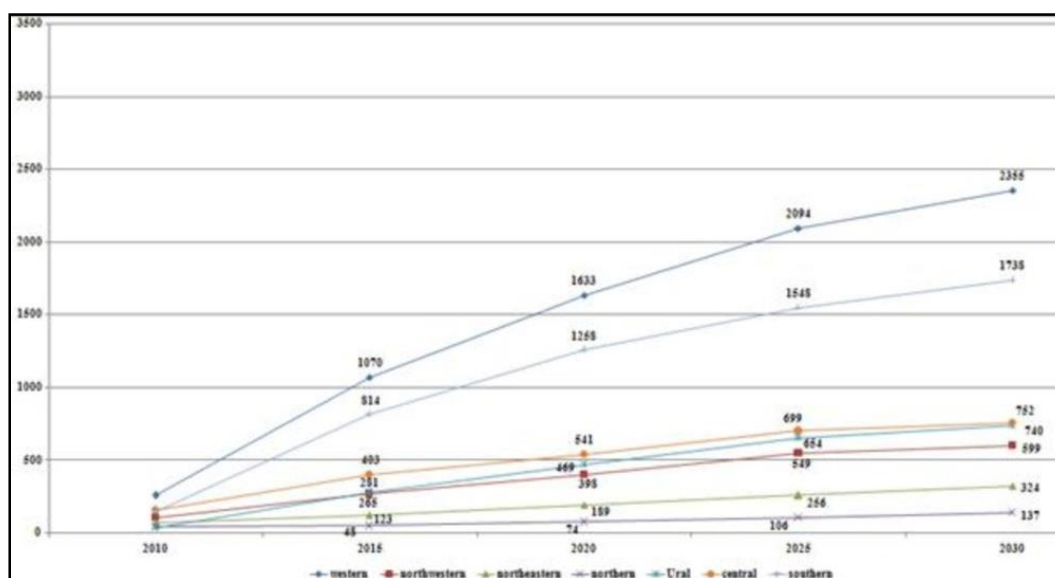


FIGURE 1
FORECAST VALUES OF GRAIN PRODUCTION BY SUBREGIONS OF THE
BASHKORTOSTAN REPUBLIC, THOUSAND TONS

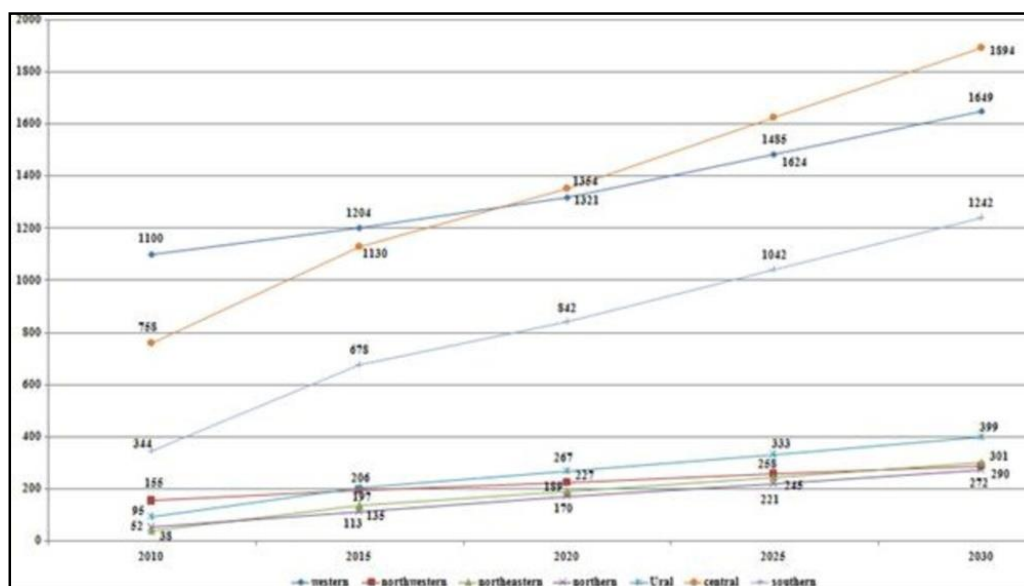


FIGURE 2

FORECAST VALUES OF FIELD AND GREENHOUSE VEGETABLES PRODUCTION BY SUBREGIONS OF THE BASHKORTOSTAN REPUBLIC, THOUSAND CENTNERS

The conducted analysis allows determining a set of measures for grain producers and ensuring the maximum use of the existing production potential: differentiation of unrelated support rates depending on yield; improving the mechanism of granting subsidies for equipment; involvement of previously withdrawn agricultural land in the turnover.

Beef production remains one of the most difficult and time-consuming areas in animal breeding. The poultry market in the Republic of Bashkortostan is not saturated; a large volume is imported from neighboring regions. The development of dairy cattle breeding is currently carried out in different directions.

According to the calculations on the extensive-intensive development scenario, the following results were obtained in terms of production in all categories of farms of the Republic of Bashkortostan (table 2, figures 3, 4):

Livestock and Poultry for Slaughter (In Live Weight)

- For the middle-term perspective (2018–2025): 472.9 thousand tons for the whole Bashkortostan Republic, including sub-regions: western–140.2 thousand tons, northwestern–28.1 thousand tons, northeastern–21.3 thousand tons, northern–14.1 thousand tons, Ural–52.0 thousand tons, central–95.9 thousand tons, southern–121.3 thousand tons.
- For the long-term perspective (2018–2030): 514.5 thousand tons for the whole Bashkortostan Republic, including sub-regions: western–167.6 thousand tons, northwestern–31.2 thousand tons, northeastern–25.1 thousand tons, northern–14.5 thousand tons, Ural–56.6 thousand tons, central–91.1 thousand tons, southern–128.3 thousand tons.

Milk

- For the middle-term perspective (2018–2025): 1899.8 thousand tons for the whole Bashkortostan Republic, including sub-regions: western–518.7 thousand tons, northwestern–207.6 thousand tons, northeastern–129.1 thousand tons, northern–74.3 thousand tons, Ural–319.0 thousand tons, central–218.9 thousand tons, southern–432.2 thousand tons.
- For the long-term perspective (2018–2030): 2036.4 thousand tons for the whole Bashkortostan Republic, including sub-regions: western–539.3 thousand tons, northwestern–235.8 thousand tons, northeastern–136.6 thousand tons, northern–81.4 thousand tons, Ural–353.6 thousand tons, central–229.3 thousand tons, southern–460.4 thousand tons.

Table 2 FORECAST VALUES OF LIVESTOCK PRODUCTION IN FARMS OF ALL CATEGORIES FOR MIDDLE- AND LONG-TERM PERSPECTIVE IN THE REPUBLIC OF BASHKORTOSTAN, THOUSAND TONS								
Years	In the Republic	Sub-regions						
		Western	Northwestern	Northeastern	Northern	Ural	Central	Southern
Cattle and poultry for slaughter (live weight)								
2010	467.0	116.7	40.2	31.8	16.1	62.4	90.4	109.4
2015	393.8	103.6	32.5	20.6	15.2	48.3	61.4	112.3
2020	424.5	130.1	25.0	17.2	13.8	47.4	71.4	119.7
2025	472.9	140.2	28.1	21.3	14.1	52.0	95.9	121.3
2030	514.5	167.6	31.2	25.1	14.5	56.6	91.1	128.3
Milk								
2010	2077.7	590.5	209.2	145.0	80.2	324.6	289.7	438.5
2015	1812.0	531.3	181.6	123.6	77.0	270.6	211.7	416.2
2020	1782.7	497.9	187.9	121.4	67.2	293.7	208.8	405.9
2025	1899.8	518.7	207.6	129.1	74.3	319.0	218.9	432.2
2030	2036.4	539.3	235.8	136.6	81.4	353.6	229.3	460.4

To increase the volume of meat production in animal breeding it is recommended to implement a number of measures: development and increase of the share of specialized beef cattle breeding; more government support for start-up farmers and family livestock breeding farms in beef cattle breeding and others.

Poultry meat production increase can be achieved provision for reimbursement of part of the cost of construction, reconstruction and modernization of livestock buildings of small poultry farms.

A list of activities for the dairy cattle breeding is as follows: creation of modern material and technical base; search for profitable sales channels; selection development in the dairy direction.

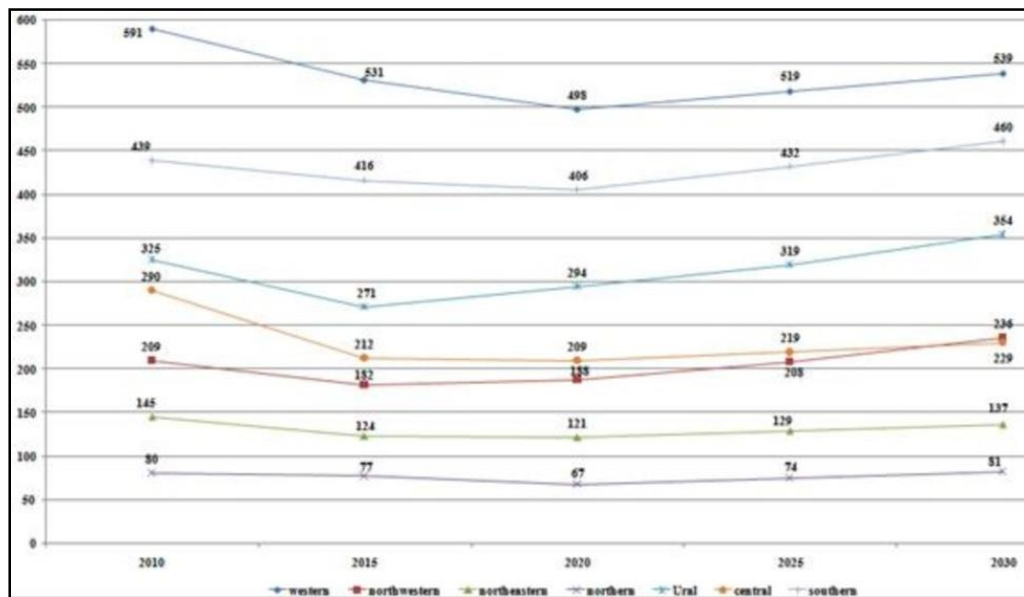


FIGURE 3
FORECAST VALUES OF LIVESTOCK AND POULTRY PRODUCTION FOR
SLAUGHTER (LIVE WEIGHT) BY SUBREGIONS OF THE BASHKORTOSTAN
REPUBLIC, THOUSAND TONS

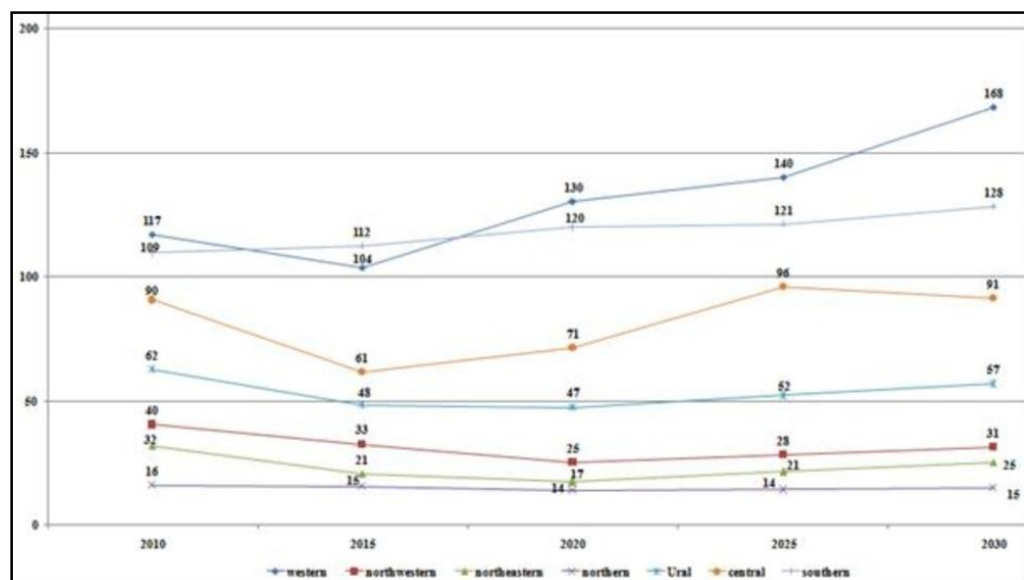


FIGURE 4
FORECAST VALUES OF MILK PRODUCTION BY SUBREGIONS OF THE
BASHKORTOSTAN REPUBLIC, THOUSAND CENTNERS

DISCUSSION

Despite the increased attention in the field of entrepreneurship education in recent years to the whole range of issues related to forecasting and long-term planning of issues in the agro-industrial complex, both in our country and abroad, quantitative indicators have attracted primary attention. Actually, the problems associated with forecasting goals, content, methods, tools and organizational forms of management provided in entrepreneurial training at different levels of education are still at the formulation stage. In this regard, the development of scenario forecasting methodology issues, their testing and evaluation, and rapid implementation of their results in the actualization of entrepreneurial competencies are of a particular relevance. The presented results of predictive research allow us to consider changes in the plan of modern work operational restructuring, taking into account the natural trends identified in the strategic forecasting process.

Rural areas development is a pressing need all over the world. The existing problems in the countryside are typical both for foreign countries and for Russia. The study of the experience of different countries shows that rural areas have significant potential for the development of the region, which currently remains unrealized. This tendency provokes new and worsens existing problems. So in the agricultural countries of the world (China, Cambodia, Moldova, Romania, Argentina and others) problems are divided into five main areas: 1) low level of innovative technologies introduction into production and lack of specialists capable to use them; 2) poor infrastructure development; 3) difficulties in solving problems of trust between market participants and coordinating their activities in coordinating commodity and cash flows; 4) insufficient amount of budget resources constraining the development of rural areas; 5) various microeconomic risks.

In modern conditions it becomes obvious that the criteria used to characterize agriculture are not enough for the formation of the policy of strategic development of rural areas. According to many scientists' opinion, an integrated approach is needed when conducting research of sustainable rural areas development (Lukyanets et al., 2015). The results of the study analyzing the structure of the agro-industrial complex of the regions of the Northeastern and Northern subregions allowed suggesting the following areas (Kotov & Gamilova, 2016): increasing the intensity of agriculture by introducing highly productive varieties of crops and animal breeds; improving the efficiency of self-employment and using forms of family employment in private farms of consumer type, their cooperation with each other, with peasant (farm) farms, processing and servicing industries.

Some researchers note that further sustainable development of agriculture requires the integration of IT technologies (Islamutdinov, 2018). For Antsiferova et al. (2019), it is relevant to develop a strategy for agricultural development that would involve inertial, local innovations and scenarios for generating systemic innovations.

Another important area is concerned with agricultural robotics, which can increase the quality and quantity of products (Kintonova et al., 2019; Pavlov et al., 2019). These strategies may be of use but their implementation needs the following factors to taken into account:

- The main directions to develop municipal districts of the Ural sub-region are largely similar to the directions of the previous ones. Additionally, should be development of activities traditional for rural areas (Panfilova et al., 2019).

- For successful and balanced development of the northwestern sub-region, the following expansion of access of agricultural enterprises to sales markets through the developed cooperation and integration with processing and service industries.
- The development of areas of the Western sub-region should include similar measures to stabilize the demographic situation, as well as creation of conditions for the development of agricultural markets, including cooperative ones, providing better access to them for producers.
- In the future, the areas of the Central and Southern sub-regions should focus on the following: development of the processing of agricultural products; focus on the development of green agriculture (Kovshov & Lukyanova, 2018).

We agree that agricultural development must be comprehensive and that multiple approaches and techniques for assessing innovative development are needed. However, training future entrepreneurs to use these approaches and techniques is much more important.

CONCLUSIONS

The analysis shows that the rural territories of the Republic of Bashkortostan are heterogeneous in terms of existing problems and resource potential and require the implementation of various skills used in entrepreneurship education. The considered approach to the organization of scenario planning of development in modern business structures makes it possible to obtain 6.6 million tons of grain in the long-term development scenario, 6.0 million tons of open and protected ground vegetables, 514.5 thousand tons of livestock and poultry for slaughter (live weight), and 2036.4 thousand tons of milk.

The model includes a set of interrelated activities based on the use of the resource potential of agricultural enterprises, the experience of the leading regions and state support for the main growth points in the form of strategic directions, as well as best international practices.

Based on the reviewed strategic challenges and existing problems, the conducted research allows developing a scientifically-based strategy to develop agro-industrial complex, to determine the priority directions of development and justify concrete and effective measures for a more complete and rational use of the available resources and the entire potential of agricultural production in the region.

One of the most important long-term strategic tasks of the education system in the framework of promoting the civilized market relations creation in the country is the formation of an entrepreneurial culture. At the same time, we understand entrepreneurship as an active life position in managing changes and introducing innovations in the agro-industrial complex. Economic training is the most important element of education, the structural element of which is entrepreneurial activity. It shows a creative, constructive attitude to work, transforming the economy through business activity and enterprise. The proposed measures can be used in the development of forecast indicators of the activities of agricultural enterprises, to contribute to an increase in production volumes and increase its economic efficiency.

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