TERRITORIAL SPECIALIZATION OF AGRICULTURAL PRODUCTION OF THE REGION

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Abstract: *The analysis of territorial specialization of agriculture of the West Kazakhstan region was conducted. Territorial differentiation of agricultural production is determined by the set of natural resource and socio-economic factors. A large latitudinal length of the region determines the distinct zoning of agricultural production. The types of production that impact the increase in agrarian production are defined on the basis of correlation and regression analysis. The structure of the agricultural products does not comply with the requirements of optimization. Seven rural areas, combined into three groups, were identified within the region. Further development of agriculture in the region is connected with the optimization of its territorial organization.*

Keywords: *agriculture, territorial division of labor, territorial specialization, agricultural areas, optimization*

1. INTRODUCTION

The solution to the problem of food security of the country and its regions is closely linked to the improvement of the territorial organization of agriculture, progressive changes in its structure, specialization and mandatory accounting for the natural, environmental and socio-economic factors in the development of agricultural production. Current development of the agricultural sector of the West Kazakhstan region is described by instability, violation of scientifically grounded criteria in the territorial organization of industries and their combinations, and underdevelopment of issues of adaptation to changing market conditions. The vastness of the territory of Kazakhstan and its regions impacts the territorial specialization of agrarian production, its results and, as a result, non-uniformity in the distribution of food. The economic importance of a proper territorial specialization of agricultural production is that it creates the conditions for more efficient use of the main means of production – the land. The increase

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of the quantity and improvement in the quality of crop and livestock production on this basis are the main task of agriculture. Being the result of the territorial organization of agriculture, specialization involves the concentration of production of certain types of agricultural production in specific zones favorable for them. Specialization offers great opportunities to further improve the utilization of rural labor resources, significantly alters the professional structure of the crop and livestock production workers, raises qualification and specialization of the workers, which ultimately contributes to the productivity of agricultural labor. The territorial specialization will result in release of competitive products to the market, which will help solve a number of problems of regional economy.

All this requires a comprehensive analysis of the territorial organization of agriculture, regional specialization of agricultural production and identification of opportunities to optimize them.

Problems of interaction between production and territory were the subject of research in many branches of scientific knowledge, including the regional economy, economic geography and economics. The known theories and concepts of territorial (spatial) development can be roughly grouped into following:

- model of territorial distribution of agricultural industries ("Thünen model") (J. Thünen, 1826, G.V. Ioffe and T.G. Nefedova, 2001);
- standort theory (A. Weber, 1909);
- theory of the economic region (A. Lesh, 1940);
- theory of the territorial organization of agriculture (A.N. Rakitnikov, 1975, V.G. Kryuchkov, 1978, V.G. Kryuchkov, 1994, A.M. Nosonov, 2001, V.I. Trukhachev, 2005, A.V. Kolmykov, 2014);
- concept of agricultural ecosystems (D. Pimentel, 1980, E. Odum, 1984, G.R. Conway, 1987);
- concept of sustainable agriculture (S.R. Gliessman, 1990, M.A. Altieri, 1995, T.E. Crews, 1991, C.A. Francis, 1995);
- concept of adaptive intensification of agriculture (A.A. Zhuchenko, 1994);
- model of growth poles (F. Perroux, 1961, J. Boudeville ,1961, J.R. Lasuén, 1969);
- "Center-Periphery" theory (P. Krugman, 1991, V.N. Vysotsky, 1980).

The task of the territorial organization of agricultural production, which determines its content, is a mutual adaptation of the territory and production, creation of favorable spatial conditions for effective economy management through proper allocation of the elements of production organization and use of production factors. The idea of spatial (territorial) organization applies to both the national economy as a whole and its individual sectors, including the agrarian sector.

The purpose of the study is to identify the territorial specialization of the agricultural production development and find ways to improve the territorial organization of the agrarian sector of the region.

2. METHODS

The methodological basis of the work is a systematic approach to the study of relations between agriculture and natural resource environment. The study of this issue was based on the analysis of the prevailing theoretical ideas of experts in various fields, including the study of the territorial organization of agriculture, rural areas, and assessment of natural resources. The initial data include statistical data on the agricultural development of West Kazakhstan region for 2003-2014 and field survey results. Statistical information was processed in the context of the administrative districts. The data obtained and processed allowed to apply various methods of comparative analysis, analysis and synthesis in the study of the territorial organization of individual sectors of agriculture, in identification of differences in the efficiency of production of major products, territorial specialization using calculation of the coefficients of specialization of administrative districts on a particular kind of agricultural production. The influence of coefficients of specialization of certain types of agricultural raw materials on the total volume of agricultural production of administrative districts was determined through building a multiple regression model. To build a multi-factor model, the statistical information on the specialization areas of the West Kazakhstan region was used, and the following steps have been carried out: mathematical and statistical analysis, building the multi-factor regression model, checking the adequacy of the model built, analysis of the results obtained. The factors were tested for multicollinearity. The method of "exceptions" was used to select the set of factors that could conceivably influence the performance indicator, and the factors with the lowest correlation coefficient (by the statistical matrix) and the value of partial F-test not exceeding the standard values were eliminated one by one. Only the variables that correspond to the conditions described above were

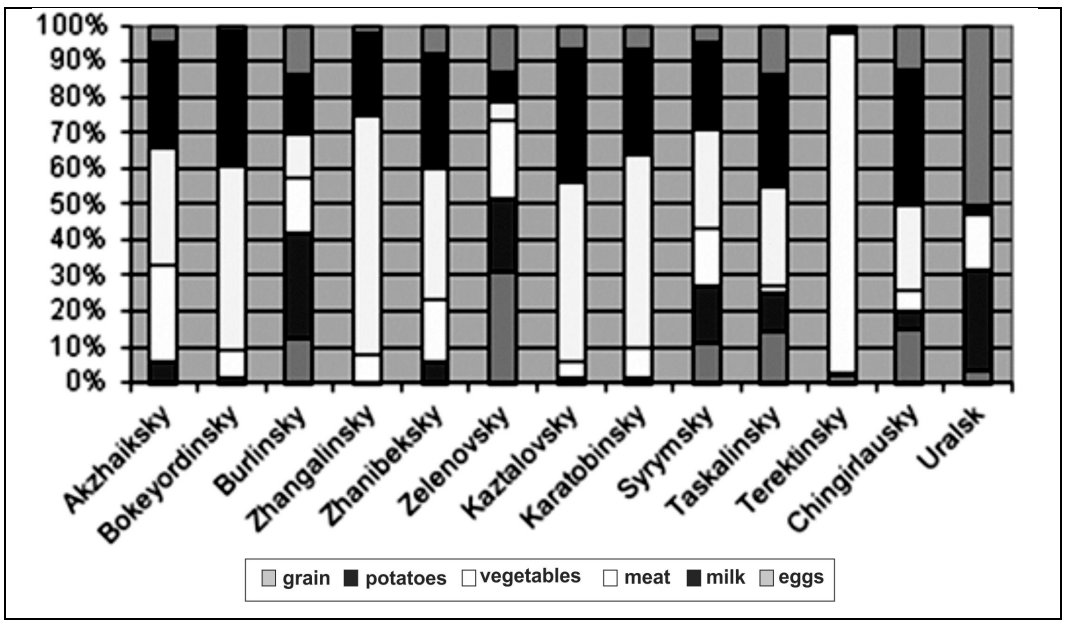
left. The next stage of the analysis involved verification of the adequacy of the model through the use of Fisher's F-test and Student's t-test. The last stage involved the analysis and interpretation of the model. Mathematical and statistical methods were used in the study of the dynamics of agricultural indicators. Zoning method used was used to study the territorial differentiation of agricultural development.

3. RESULTS

3.1 Territorial specialization of agriculture of the region

The expression of the territorial division of labor in agriculture of West Kazakhstan region is the location and specialization of its branches, which is realized directly at the level of farms and their production units (Figure 1).

Figure 1: Production of basic agricultural products by districts of West Kazakhstan region in 2014



Agricultural enterprises of various specializations and farms, which combine a number of relevant crop and livestock branches corresponding to local natural and economic conditions, operate in the regional zones. In view of the increased production costs and difficulties of sales, all producers tend to develop more profitable sectors.

The analysis of territorial development of agriculture in the region has shown that meat production dominates in four out of thirteen districts.

Districts adjacent to the regional center specialize in the production of potatoes, vegetables, eggs and grain. However, by definition, specialization is a decisive precondition for more efficient use of capital investments and fixed assets, introduction of scientific and technological progress and excellence, as well as intensive technologies, in manufacturing. Specialization helps achieve cost savings and improve profitability of production.

3.2 Results of correlation and regression analysis

The correlation and regression analysis was used to determine the effectiveness of the existing structure of agricultural production and factors that have the greatest influence on its level in each of the districts. We sampled 13 districts of the region for 2003-2014.

The gross volume of agricultural production in all categories of farms was suggested to use as a performance indication. This indicator is an indicator of the efficiency of distribution of agricultural production. The coefficients of specialization of the areas by certain types of agricultural production were chosen as factor arguments:

$\mathbf{X_{grain}}$ – coefficient of specialization in the production of grain;

$\mathbf{X_{potatoes}}$ – coefficient of specialization in the production of potatoes;

$\mathbf{X_{vegetables}}$ – coefficient of specialization in the production of vegetables;

$\mathbf{X_{meat}}$ – coefficient of specialization in the production of meat;

$\mathbf{X_{milk}}$ – coefficient of specialization in the production of milk;

$\mathbf{X_{eggs}}$ – coefficient of specialization in the production of eggs;

Resulting and independent factors by districts of West Kazakhstan region are presented in Table 1.

Data about these economic indicators are processed by correlation and regression analysis, using the add-on of the Package of analysis of the spreadsheet process data for Microsoft Office Excel.

Factors included in the multiple regression must meet the criteria of intercorrelation. They should not be intercorrelated and least of all be in the exact functional relationship. Inclusion of factors with high intercorrelation in the model may lead to undesirable consequences – the system of normal equations may be ill-conditioned and lead to instability and unreliability of estimates of regression coefficients. If there is a high correlation between the factors, it is impossible to determine their isolated impact on the

performance indicator, and parameters of the regression equation appear uninterpretable.

Matrices of pairwise correlation coefficients for simulated multi-factor system by the districts under study were calculated to measure the correlation ratio of the factors and a performance indicator. The matrix was used in the selection of factors for the subsequent inclusion of the latter in the regression model. The testing for collinear factors and factors that are functionally related to each other was conducted. Results of the multicollinearity test are shown in Table 1.

Table 1.
Evaluation of multicollinearity in a multiple regression model

No.	*Districts*	*Collinear factors*
1.	Akzhaiksky	$r_{Xpotatoes\ X\ grain}=0.90$
2.	Bokeyordinsky	$r_{Xvegetables\ X\ milk}=0.71$; $r_{Xeggs\ X\ milk}=-0.91$
3.	Burlinsky	$r_{Xmeat\ X\ milk}=0.99$
4.	Zhangalinsky	$r_{Xpotatoes\ X\ milk}=0.,83$; $r_{Xvegetables\ X\ milk}=0.81$
5.	Zhanibeksky	$r_{Xmeat\ X\ milk}=0.94$
6.	Zelenovsky	$r_{Xpotatoes\ X\ vegetables}=0.91$
7.	Kaztalovsky	$r_{Xpotatoes\ X\ vegetables}=0.92$; $r_{Xpotatoes\ X\ milk}=0.82$; $r_{Xpotatoes\ X\ eggs}=0.87$; $r_{Xvegetables\ X\ milk}=0.98$; $r_{Xvegetables\ X\ eggs}=0.99$; $r_{Xeggs\ X\ milk}=0.99$
8.	Karatobinsky	$r_{Xgrain\ X\ meat}=-0.72$; $r_{Xgrain\ X\ eggs}=0.84$
9.	Syrymsky	$r_{Xpotatoes\ X\ vegetables}=0.93$; $r_{Xpotatoes\ X\ milk}=0.73$; $r_{Xvegetables\ X\ milk}=0.88$
10.	Taskalinsky	$r_{Xvegetables\ X\ milk}=-0.91$
11.	Terektinsky	$r_{Xmeat\ X\ milk}=0.79$
12.	Chingirlausky	$r_{Xmeat\ X\ milk}=0.93$
13.	Uralsk	-

The values of pair correlation coefficients indicate a fairly strong association of each factor with the result, as well as a high interfactor dependence, i.e. multicollinearity, when the values of pair correlation coefficients are greater than 0.7). With such a strong interfactor dependence, it is recommended to exclude one factor from consideration. Exception is a factor with a weaker bond with the performance indication (C. Dougherty, 1999, Shalabanov A.K., Roganov D.A., 2002).

After processing the empirical data by the remaining economic indicators, we get a model represented as the equation of multiple regression (Table 2).

Table 2.
Results of the regression analysis of agriculture specialization of West Kazakhstan regiond

No.	Districts	Regression equation	Coefficient of etermination	Fisher F-statistic	Strong positive factors	Strong negative factor
1.	Akzhaiksky	Y=-16689.13+12845.35Xmeat	0.84	36.86	meat	-
2.	Bokeyordinsky	$Y=-9776.08+3902.74X_{grain}+6441.41X_{milk}$	0.87	19.61	grain milk	-
3.	Burlinsky	$Y=1998.18+1836.72X_{grain}+2031.08X_{potatoes}-5009.92X_{vegetables}$	0.84	8.84	grain potatoes	vegetables
4.	Zhangalinsky	$Y=4876.82-10680.51X_{grain}-1830.97X_{vegetables}+354.01$Xmeat	0.88	12.38	grain meat	vegetables
5.	Zhanibeksky	$Y=-10356.11+7689.45X_{milk}$	0.80	27.98	milk	-
6.	Zelenovsky	$Y=24089.93+15853.9008X_{potatoes}-24465.32X_{vegetables}+14254.94X_{eggs}$	0.75	5.01	potatoes eggs	vegetables
7.	Kaztalovsky	$Y=-6585.04+4347.49$Xmeat$+109.87X_{milk}$	0.71	7.27	meat milk	-
8.	Karatobinsky	$Y=-763.21+1831.49$Xmeat$-1752.14X_{eggs}$	0.95	54.93	meat eggs	eggs
9.	Syrymsky	$Y=-2224.58-1814.84$Xmeat$+6130.63X_{milk}$	0.75	8.91	milk	meat
10.	Taskalinsky	$Y=-3093.54-585.01X_{potatoes}+3216.50X_{milk}$	0.69	6.83	milk	potatoes
11.	Terektinsky	$Y=7802.59+1769.38X_{grain}-3970.36X_{potatoes}-2565.09X_{eggs}$	0.91	17.01	grain	potatoes eggs
12.	Chingirlausky	$Y=-2455.27+565.08X_{vegetables}+3233.58$Xmeat	0.83	14.44	vegetables meat	-
13.	Uralsk	$Y=14205.72-11202.69X_{potatoes}+10937.70X_{vegetables}-160248.44X_{milk}+1089.25X_{eggs}$	0.91	9.82	vegetables eggs	potatoes milk

The model was verified. The model is adequate according to Fisher's F-test, as *Festim* > *Ftable*. The determination ratio of 0.909 shows that 71 to 91% of the variation of the observed values of the dependent variable Y is explained by the model built. With regard to the significance of the model coefficients, all coefficients of the independent variables remaining in the model are significant, as the calculated values of Student's t-test exceed the critical value t_{crit} for the 5% significance level.

The obtained coefficients indicate what contribution each of the explanatory variables x makes in the explanation of the behavior of the response Y.

3.3 Interpretation of equations.

In Akzhaik district, a growth of the coefficient of specialization in meat production by 1 unit leads to the growth of the production of gross agricultural output by 12,845.35 thous. tenge.

In Bokeyordinsky district, a growth of the coefficient of specialization in grain production by 1 unit leads to the growth of the production of gross agricultural output by 3,902.74 thous. tenge, a growth of the coefficient of specialization in milk production by 1 unit leads to the growth of the production of gross agricultural output by 6,441.41 thous. tenge.

In Burlinsky district, a growth of the coefficient of specialization in grain production by 1 unit leads to the growth of the production of gross agricultural output of the district by 1,836.72 thous. tenge, potatoes – by 2,031.08 thous. tenge. However, a growth of the coefficient of specialization in vegetables production by 1 unit leads to the decline of the production of gross agricultural output by 5,009.92 thous. tenge.

In Zhangalinsky district, a growth of the coefficient of specialization in grain production by 1 unit leads to the decline of the production of gross agricultural output by 10,680.51 thous. tenge, a growth of the coefficient of specialization in vegetables production by 1 unit leads to the decline of the production of gross agricultural output by 1,830.97 thous. tenge, a growth of the coefficient of specialization in meat production by 1 unit leads to the growth of the production of gross agricultural output by 354.01 thous. tenge.

In Zhanibeksky district, a growth of the coefficient of specialization in milk production by 1 unit leads to the growth of the production of gross agricultural output by 7,689.45 thous. tenge.

In Zelenovsky district, a growth of the coefficient of specialization in potatoes production by 1 unit leads to the growth of the production of gross agricultural output by 15,853.90 thous. tenge, a growth of the coefficient of specialization in vegetables production by 1 unit leads to the decline of the production of gross agricultural output by 24,465.32 thous. tenge, a growth of the coefficient of specialization in eggs production by 1 unit leads to the growth of the production of gross agricultural output by 14,254.94 thous. tenge.

In Kaztalovsky district, a growth of the coefficient of specialization in meat production by 1 unit leads to the growth of the production of gross agricultural output by 4,347.49 thous. tenge, a growth of the coefficient of specialization in milk production by 1 unit leads to the growth of the production of gross agricultural output by 109.87 thous. tenge.

In Karatobinsky district, a growth of the coefficient of specialization in meat production by 1 unit leads to the growth of the production of gross agricultural output by 1,831.49 thous. tenge, a growth of the coefficient of specialization in eggs production by 1 unit leads to the decline of the production of gross agricultural output by 1,752.14 thous. tenge.

According to calculations, milk production is the best specialization of Syrymsky district. A growth of the coefficient of specialization in milk production by 1 unit leads to the growth of the production of gross agricultural output by 6,130.63 thous. tenge. Milk production is unprofitable, since a growth of the coefficient of specialization in meat production by 1 unit leads to the decline of the production of gross agricultural output by 1,814.84 thous. tenge.

In Taskalinsky district, a growth of the coefficient of specialization in milk production by 1 unit leads to the growth of the production of gross agricultural output of the district by 3,216.50 thous. tenge. A growth of the coefficient of specialization in potatoes production by 1 unit leads to the decline of the production of gross agricultural output by 585.01 thous. tenge.

In Terektinsky district, a growth of the coefficient of specialization in grain production by 1 unit leads to the growth of the production of gross agricultural output of the district by 1,769.38 thous. tenge, a growth of the coefficient of specialization in grain and potatoes production by 1 unit leads to the decline of the production of gross agricultural output of the district by 3,970.36 and 2,565.09 thous. tenge respectively.

In Chingirlausky district, the best production is vegetables and meat. A growth of the coefficient of specialization in their production by 1 unit leads to the growth of the production of gross agricultural output of the district by 565.08 and 3,233.58 thous. tenge respectively.

In Uralsk, the best production is vegetables and eggs. A growth of the coefficient of specialization in their production by 1 unit leads to the growth of the production of gross agricultural output of the district by 10,937.70 and 1,089.25 thous. tenge respectively. Production of potatoes and milk is significant but inefficient. A growth of the coefficient of specialization in

their production by 1 unit leads to the decline of the production of gross agricultural output of the district by 11,202.69 and 160,248.44 thous. tenge respectively.

The rest of the factors not included in the equation do not provide any significant impact on the result.

Thus, the last columns of Table 2 highlight the strong significant factors which lead to the growth of the production of gross agricultural output of the region under study, as well as the significant indication factors which adversely affect the gross agricultural output of the region. When estimating the existing structure of manufactured products from these positions, it should be said that it is far from meeting the requirements of optimization.

4. DISCUSSION

4.1 Peculiarities of agriculture in the region

Shaping and development of the agrarian sector of the region is largely determined by the specific conditions and factors of agricultural production. The more diverse and geographically differentiated natural and economic conditions of the region are, the more complicated structure of the regional agricultural system and the degree of its participation in the territorial division of labor are. The territory of West Kazakhstan region is located in the steppe, desert-steppe and desert zones. A large latitudinal extent of the region defines a wide variety of agro-climatic conditions within it. The combination of agro-climatic conditions is a favorable resource base for development of the agrarian sector of the region. One of the qualitative characteristics of the region is the high degree of agricultural land use. The area of agricultural lands is 84.5% of the total land area of the region. Moving from north to south, following the change in agro-climatic and soil conditions on the territory of the region, the land fund structure and the respective structure of agricultural land also change. Density of arable land per person employed in agriculture is 6.9 hectares on average in the region. The areas located in its northern part are best provided with cropland. The share of grassland in agricultural land has increased from north to south, reaching 89% in the southern regions. 67.4% in the structure of sown area is crops, 23.1% is fodder, and the remaining area is occupied by cucurbits crops, potatoes and industrial crops. It should be noted that the structure of sown areas has remained virtually unchanged for a long time. In terms of risk farming of the region, the insufficient diversification of acreage planted had negative impact on production. The situation has changed somewhat in

the last two years. In particular, the acreage planted with grain crops has been diminished by 39.4 thous. ha, the acreage planted with oilseeds has increased by 13.6 thous. ha, and the acreage planted with fodder has increased by 24.1 thous. ha (Agriculture of West Kazakhstan region, 2014). Further diversification of cultivated areas (increase in the share of winter cereal crops, oilseeds and fodder crops) will help stabilize crop production.

4.2 Specialization of crop farming

Development and deployment of crop production is based on grain crops. The following food crops stand out in the structure of the bulk yield: spring wheat (63%), winter wheat (10.2%), winter rye (2.7%); grains – millet and buckwheat (4.1%), and fodder – barley (21.3%). Yields of grain crops vary considerably across the regions. In dry steppe subzone, it is 8.2 dt/ha, reaching 2-5 dt/ha in the southern regions. The highest (more than 11 dt/ha) yield is characteristic of the areas located in the subzone of moderately dry steppe. We must note the predominance of small farms in grain farming, those with up to 1,000 ha and sowing about 30% of the total sown area of grain crops. Yields of those farms do not exceed 5-6 dt/ha and fall to 2-3 dt/ha in dry years, resulting in low incomes and losses and preventing to maintain the expanded reproduction. Grain production is unstable, often recurring drought is the constraining factor.

Territorial concentration of grain production is caused not only by natural and climatic conditions, but also by economic conditions – in particular, the uneven efficiency of their production. The high level of profitability of grain production is noted in the northern regions (10-15%), they are also described by low expenses (1.5 thous. tenge per 1 dt). Prevailing cost-intensive technology does not allow to carry on business with good financial and economic indicators. The requirement for sustainable development of the grain industry is the introduction of a zonal farming system adapted to the arid conditions of the region with the increase in the share of winter grains, vapors, compliance with evidence-based crop rotation, the use of water- and resource-saving technologies, seeds of high reproductions of new productive varieties.

Measures to develop vegetable farms are taken to provide the internal market with own-produced fruits and vegetables. The average annual potatoes production is 55.8 thous. tons, vegetables – 50.9 thous. tons, melons – 22.9 thous. tons. The growth rate of production of fruits and vegetables is 105.6%. Potatoes yield increased from 144 dt/ha in 2009 to 154.4 dt/ha in 2014, vegetables yield increased from 135 dt/ha to 146.7 dt/ha, melons yield

increased from 143.3 dt/ha to 151.7 dt/ha (Monitoring of the aul development, 2014)).

Major problems that limit the development of crop production include: the use of simplified technology, heavy wear of agricultural machinery and technological equipment (the average age of the fleet of agricultural equipment is 15-18 years, while the normative operation is 7-10 years), resulting in low labor productivity and rising costs of production, the spread of quarantine, pests and especially dangerous pests damaging agricultural production, agricultural competition between member countries of integration associations.

4.3 Specialization of livestock production

Differences in climatic conditions on the territory of the region influence the change of the fodder production structure, where zoning can clearly be seen. Since the northern regions have a high ploughness of land, the basis of fodder production is fodder crops. Fodder grains, perennial and annual grasses, corn for green fodder and silage play the key role here. The livestock keeping is stall and pasture. When moving to the south, a share of a field fodder production reduces, while the share of the natural hayfields and pastures increases. An important source of biologically valuable fodder is natural meadows and pastures, the area of which in the region is 11,154.9 thous. ha or 82.3% of the total area of agricultural land, including 1,013.3 thous. ha of hayfields and 10,141.6 thous. ha of pastures. In the southern areas, the share of natural grassland is 90%; livestock keeping is stall and pasture. In general, the productivity of natural grassland is relatively low: 5-6 dt of hay from 1 ha. Livestock production development in all agricultural enterprises in the region is based on local fodder base, which does not yet fully meet the needs of livestock production.

Branches of specialization of livestock production in the region are cattle breeding, sheep breeding, horse breeding, and the additional branches are poultry breeding, camel breeding and pig breeding. The region concentrates 7.1% of the cattle headcount, 5.5% of sheep and goats headcount, 5.8% of horses headcount, 1.8% of camels headcount and 2.7% of birds from the availability of livestock and poultry in the whole republic. The average annual production of meat in slaughter weight is 36.8 thous. tons. Beef makes up 66.9% in the structure of meat produced in the region's farms. The total cattle headcount is 417.2 thous. heads (Agriculture of West Kazakhstan region, 2014). Meat cattle breeding is most developed in the northern and central regions, where cattle share in the structure of livestock provision is

70%, and the production of meat per 100 ha of farmland is 10-15 dt of body weight. In spite of the favorable conditions, the economic efficiency of beef production in the region is not high enough. This is due to the low proportion of cows in the herd (40.3%), the prevalence of mongrel cattle and low yielders, as well as the low level of comprehensive mechanization of works on livestock farms, which is 45%.

In addition to meat cattle breeding, the leading sector of animal breeding is sheep breeding, which is developed in the central regions and particularly in the southern regions. The share of mutton in the structure of provision is 19.4% in average in the region, and it increases to 45% in the southern regions. The total number of sheep is 959.9 thous. heads, of which 55.1% came from private farms (Regions of Kazakhstan, 2014). Indicators of economic efficiency of sheep breeding in the region demonstrate its significant differentiation. Areas with high performance in meat and wool production per 100 ha of farmland are notable for the high level of profitability. Livestock system is complemented by poultry (0.7% in the structure of provision) developed in a suburban area, drove breeding of horses (6.7%) and camel breeding (0.2%) in the southern regions.

4.4 Agricultural areas

Territorial differentiation of forms of agriculture and livestock keeping types, determined by the landscape specifics and the particular nature of the local socio-economic conditions, influences the changes in crop and livestock production ratio and the formation of regional agricultural systems. They are territorial systems of various hierarchical levels from the individual enterprise to the agricultural area. Sustainable territorial combinations of the production types of agricultural enterprises form the rural areas, the boundaries of which largely determine the territorial organization of the agrarian sector of the region.

There are seven rural areas on the territory of the region. These areas are important for the purpose of improving regional governance and optimization of the territorial organization of agriculture. By peculiarities of combination of various production types, agricultural areas can be grouped into three categories (Table 3).

Enhancement of the first group of the areas is associated with the deepening of specialization in the production of grain crops and vegetables and cattle breeding. Given the peculiarities of the zonal specialization of agriculture, the formation of a suburban complex is possible in the future.

The priority development in the suburbs must be given to vegeculture, poultry and pork breeding.

Table 3.
Grouping of agricultural areas of West Kazakhstan region

Indicators	Group 1	Group 2	Group 3
Population, thous. people	394.2	113.1	120.1
Area of agricultural land, thous. ha	2,000.0	4,967.1	7,021.7
Specialization	Grain farming, vege-culture, meat and dairy cattle breeding	Meat cattle breeding, sheep breeding, grain farming	Sheep breeding, horses breeding, meat cattle breeding
	Specific weight in regional production, %:		
grain	62.3	36.5	7.0
vegetables	66.8	19.7	13.5
meat	30.8	26.6	42.6
milk	43.9	28.2	27.9
wool	6.6	26.4	66.9

Since the instability of agriculture intensifies, frequency of drought and yield variability increase in the areas of the second group, the crop acreage should be reduced and the sufficient reserves for further development of meat cattle breeding and meat and wool sheep breeding should be used. Further enhancement of the agricultural areas of the third group is associated with the deepening of specialization of agriculture in the development of meat and wool, coarse-wool sheep breeding, meat cattle breeding and drove breeding of horses.

5. CONCLUSION

The dynamic and effective development of agriculture must become not only the general economic prerequisite for successful solutions to the industrial, financial and social problems accumulated in the sector, but also a way of consistent coordination of orientations at the increase of the regional product and improvement of the food security of the area, i.e. must ensure the successful implementation of the whole complex of social and economic goals of the country development in the given term. Further development and improvement of territorial organization of the agrarian sector of the region is possible upon condition of the deepening of specialization of each region, the development of rational production and economic relations between them.

It is advisable to further deepen the division of labor due to the concentration of certain sectors in the agricultural zones of the region with the most favorable working environment and to establish the specialized areas of production of certain types of agricultural crops on this basis and cultivation of certain types of farm animals in order to ensure the fullest possible use of the natural potential of the various areas to achieve the necessary scale of production at a more stable and economical farm management. Further studies will involve projections of the increase in the production of basic agricultural products by improving crop yields and animal productivity through the use of more efficient, resource-saving technologies and consideration of zonal agro-climatic conditions. It is necessary to determine the effectiveness of state support of the specialization areas of the region for their further development.

References

Selskoye khozyaystvo Zapadno-Kazakhstanskoy oblasti [Agriculture of the West Kazakhstan Region]. Statistics Department of the West Kazakhstan Region, Uralsk, pp: 104.

Altieri, M.A., 1995. Agroecology: The Science of Sustainable Agriculture. Westview Press, pp: 423.

Boudeville, J., 1961. Les 'espace economique. Paris, pp: 16–37.

Conway, G.R., 1987. The properties of Agroecosystems. Agricultural Systems: 95-117.

Crews, T.E., C.L. Mohler and A.G. Power, 1991. Energetics and Ecosystem Integrity: The Defining Principles of Sustainable Agriculture. American Journal of Alternative Agriculture, 3: 146-149.

Dougherty, C., 1999. Vvedeniye v ekonometriku [Introduction to Econometrics]. Moscow: INFRA, pp: 402.

Fracis, C.A. and J.P. Madden, 1995. Designing the Future: Sustainable Agriculture in the U.S. Agriculture, Ecosystems and Environment, 1-4: 123-134.

Gliessman, S.R., 1990. Agroecology: Researching the Ecological Basis for Sustainable Agriculture. New York: Spriger-Verlag, pp: 245.

Ioffe, G.V. and T.G. Nefedova, 2001. Tsentr i periferiya v selskom khozyaystve Rossiyskikh regionov [Centre and Periphery in Agriculture of Russian Regions]. Problems of Forecasting, 6: 25-31.

Zhuchenko, A.A., 1994. Strategiya adaptivnoy intensifikatsii selskogo khozyaystva (kontseptsiya) [Strategy of Adaptive Intensification of Agriculture (Concept)]. Pushchino: DSTI PSC RAS, pp: 148.

Kolmykov, A.V., 2014. Metodologicheskiye polozheniya territorialnoy organizatsii selskokhozyaystvennykh predpriyatiy [Methodological Provisions of the Tterritorial

Organization of the Agricultural Eenterprises]. Land Management, Cadaster and Monitoring of Lands, 1: 20-24.

Kryuchkov, V.G., 1994. Metodologicheskiye i metodicheskiye voprosy ekonomiko-geograficheskogo izucheniya territorialnoy organizatsii khozyaystva v selskoy mestnosti [Methodological and Methodical Issues of Economic and Geographical Study of the Territorial Organization of the Economy in Rural Areas]. Bulletin of the Moscow University. Series 5. Geography, 1: 18-24.

Kryuchkov, V.G., 1978. Territorialnaya organizatsiya selskogo khozyaystva [Territorial Organization of Agriculture]. Moscow: Mysl, pp: 268.

Krugman, P., 1991. Increasing Returns and Economic Geography. Journal of Political Economy, 99 (3): 483-499.

Lösch, A., 1940. Die räumliche Ordnung der Wirtschaft: eine Untersuchung über Standort, Wirtschaftsgebiete und internationalem Handel. Jena: Fischer: pp. 664.

Lasuén, J. R., 1969. On Growth Poles. Urban Studies, 6: 137–152.

Monitoring razvitiya aula (sela) [Monitoring of the Aul (Village) Development]. Statistics Department of the West Kazakhstan region. Uralsk, pp: 114.

Nosonov, A.M., 2001. Territorialnyye sistemy selskogo khozyaystva [Territorial Systems of Agriculture]. Moscow: Yanus-K, pp. 324.

Odum, E., 1984. Properties of Agroecosystems. Agroecosystems: Unifying Concepts. New York: Wiley: 5-11.

Perrous, F., 1961. L'economie Duxxeme Siècle. Paris, pp: 44–61.

Pimentel, D. and S. Pimentel, 1980. Ecological Aspects of Agricultural Policy. Nat. Resor. J., 2 (3): 18-29.

Rakitnikov, A.N., 1975. Geografiya selskogo khozyaystva [Geography of Agriculture]. Moscow: Mysl, pp: 342.

Regiony Kazakhstana [Regions of Kazakhstan] of 2014. Astana, pp. 420.

Shalabanov, A.K. and D.A. Roganov, 2002. Ekonometrika [Econometrics]. Kazan: TISBI, pp: 56.

Tyunen, I., 1926. Izolirovannoye gosudarstvo [Isolated State]. Moscow: Economic Life, pp: 326.

Trukhachev, V.I., 2005. Effektivnost zonalnoy spetsializatsii selskogo khozyaystva [Effectiveness of the Zonal Specialization of Agriculture]. Economics of Agricultural and Processing Enterprises, 2: 33-35.

Vysotsky, V.N., 1980. Metodologicheskiye problemy empiricheskogo analiza polyarizovannogo razvitiya v TPK [Methodological Problems of the Empirical Analysis of the Polarized Development in TIC]. Methodological Problems of Formation of Territorial-Industrial Complexes. Novosibirsk: IEOIP, pp. 48-65.