



UDK 339.13.025: 631.1

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MECHANISM OF STATE SUPPORT DIFFERENTIATE DISPOSITION FOR RUSSIAN AGRICULTURAL COMMODITY PRODUCERS

Abstract. The article deals with theoretical and methodological issues concerning budgetary support for agriculture in Russia and in regions. They are estimated main problems and prospects of development of the state support for agriculture of one of the major agricultural regions of the country in the WTO conditions. It is formulated a working hypothesis about the crop products dependence on natural and economic conditions. They are given their difference in microzones of a given region.

The authors offered method of calculating, while using which coefficients of the differentiated disposition of state support for microzones of the region vary from 0.85 to 1.16. Applying indexes due to the climatic conditions, amount of subsidies for 1 ha of crop area according to microzones will vary from \$9.6 in Western Pravoberezhye to \$13.2 in South-East Levoberezhye. On a regional average this index will amount to 11.0 \$/ha of crop area. It is grounded a necessity of changing the distribution mechanism of state support between regions and economic entities of agribusiness in order to increase its effectiveness and alignment of natural and economic conditions of management. It is offered the mechanism of the differentiate distribution of state support funds between agricultural producers involved in the crop production, taking into account the natural and climatic, and organizational and economic conditions of economic management.

Keywords: state support; subsidies; differentiate distribution; region; microzone; agricultural producers.

JEL Classification: P43, Q00, Q14

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МЕХАНИЗМ ДИФФЕРЕНЦИРОВАННОГО РАСПРЕДЕЛЕНИЯ ГОСУДАРСТВЕННОЙ ПОДДЕРЖКИ РОССИЙСКИХ СЕЛЬСКОХОЗЯЙСТВЕННЫХ ТОВАРОПРОИЗВОДИТЕЛЕЙ

Аннотация. В статье рассмотрены теоретические и методологические вопросы бюджетной поддержки сельского хозяйства России и ее регионов. Осуществлена оценка основных проблем и перспектив государственной поддержки сельского хозяйства Саратовской области – одного из крупных аграрных регионов страны – в условиях ВТО. Сформулирована рабочая гипотеза о зависимости производства продукции растениеводства от природно-экономических условий, показаны их различия по микрозонам отдельно взятого региона. Предложена методика расчета, при использовании которой коэффициенты дифференцированного распределения государственной поддержки по микрозонам области изменяются от 0,85 до 1,16. При применении коэффициентов с учетом климатических условий размер субсидий на 1 га посевной площади в разрезе микрозон будет изменяться по области от \$9,6 – в Западной правобережной до \$13,2 – в Юго-Восточной левобережной. В среднем по области этот показатель составит \$11,0/га. Кроме того, обоснована необходимость изменения механизма распределения государственной поддержки между регионами и хозяйствующими субъектами АПК в целях повышения эффективности ее использования и выравнивания природно-экономических условий хозяйствования. Предложен механизм дифференцированного распределения средств государственной поддержки между сельскохозяйственными товаропроизводителями, занимающимися производством продукции растениеводства, с учетом природно-климатических и организационно-экономических условий хозяйствования.

Ключевые слова: государственная поддержка, субсидии, дифференцированное распределение, регион, микрозона, сельскохозяйственные товаропроизводители.

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МЕХАНІЗМ ДИФЕРЕНЦІЙОВАНОГО РОЗПОДІЛУ ДЕРЖАВНОЇ ПІДТРИМКИ РОСІЙСЬКИХ СІЛЬСЬКОГОСПОДАРСЬКИХ ТОВАРОВИРОБНИКІВ

Анотація. У статті розглянуто теоретичні й методологічні питання бюджетної підтримки сільського господарства Росії та її регіонів. Здійснено оцінку основних проблем і перспектив державної підтримки сільського господарства Саратовської області – одного із найбільших аграрних регіонів країни – в умовах СОТ. Сформовано робочу гіпотезу про залежність виробництва продукції рослинництва від природно-економічних умов, показано їх відмінності по мікрорайонах окремого регіону. Запропоновано методику розрахунку, за використання якої коефіцієнти диференційованого розподілу державної підтримки по мікрорайонах області змінюються від 0,85 до 1,16. При застосуванні коефіцієнтів з урахуванням кліматичних умов розмір субсидій на 1 га посівної площі в розрізі мікрорайонів змінюватиметься по області від \$9,6 – у Західній правобережній до \$13,2 – у Південно-Східній лівобережній. У середньому по області цей показник складе \$11,0/га. Крім того, обґрунтовано необхідність зміни механізму розподілу державної підтримки між регіонами і господарюючими суб'єктами АПК з метою підвищення ефективності її використання й вирівнювання природно-економічних умов господарювання. Запропоновано механізм диференційованого розподілу засобів державної підтримки між сільськогосподарськими товаровиробниками, що займаються виробництвом продукції рослинництва, з урахуванням природно-кліматичних та організаційно-економічних умов господарювання.

Ключові слова: державна підтримка, субсидії, диференційований розподіл, регіон, мікрорайон, сільськогосподарські товаровиробники.

Introduction. The problem of improving the delivery mechanism and the distribution of state support for Russian agricultural producers in the contemporary economy is key issue, as the level of agricultural development largely determines the food security of the state.

Brief Literature Review. Beshpatov G. V., Baryshnikov N. G., Klyukach V. A., Mercy V. V., Poshkus B. I., Sandhu I. S., Sukhanova I. F., Khayrullin A. N., Hitskov I. F. et al. have studied problems of improving the state support of agriculture and its efficiency enhancing [1].

The next stage of this problem discussion came in connection with the entry of Russia into the World Trade Organization (WTO), where the state is forced not only to adjust items of expenditure and an amount of budget funds, but also to develop measures to improve the efficiency of their use. When all points of view concerning an amount of budget are the same, and all state about lack of it and about the need to increase subsidies, then the problem of the efficiency is not clearly marked [2].

The situation is exacerbated by the fact that this economy sector exerts a negative influence on a range of factors. The most important of which are as follows: raw material orientation of agriculture, high dependence of agricultural production on natural-climatic conditions, low investment attractiveness of the industry, the disparity of prices for the products of industry and agriculture, the low level of development of the agro food market infrastructure, lack of state support for agricultural commodity producers compared to the developed market economies. It should be noted that the amount of state support will be decreasing according to the WTO conditions.

Many scholars, such as L. Brink, D. Orden, G. Datz, I. S. Shatilov, A. Ph. Chudnovsky, point to the fact that the conditions and rules of the WTO in every participating country are applied in different ways, depending on the level of agricultural development [3; 4].

Despite more negative than positive expert forecasts about the prospects of Russian agriculture after accession to the WTO there is a number of opportunities aimed at not only to protect the domestic market, but also to support for domestic agricultural producers [5].

Obviously, in order to smooth the possible negative effects for domestic agriculture with the entry into the WTO and to make the most use of competitive advantages it is necessary to examine not only the international experience of agricultural support, but also the methodological framework of WTO in agriculture.

In the circumstances, the scientific and practical interest is the study of foreign, especially American experience in state support for agriculture, as well as its variety of the forms and methodological approaches [6]. There is a need for integration of the Russian agrarian policy in a global context.

The purpose of our research is to identify specific shortcomings appealing at the disposition of budget funds allocated for the development of crop industry and to develop recommendations for its improvements.

To realize this goal the author offered to summarize the existing experience of the Ministry of Agriculture of the Saratov region in the disposition of budget for development of the sectors of crop production, to identify the major problems occurred at the expenditures, and to develop additional proposals to ensure their spending more effectively.

The basis of methodology is differentiate approach to the disposition of state support for the sector of crop production between agricultural commodity producers in view of their differences in natural-climatic conditions and the economic efficiency of economic activities.

While the research the authors used the following methods: comparison method, elimination method, abstract and logical method, clustering method, economic and statistic methods.

Results. In recent years, the Russian government was able to increase the budgetary financing of the sector and to develop measures to create a multi-channel system of state support for agriculture.

At the same time, there are various methods and techniques of disposition of state budget funds directly to agricultural commodity producers. These techniques can generally provide targeted funding of certain government programs, allocate financial resources in different regions and selected areas according to their needs.

It improved the macroeconomic situation, stabilized and increased agricultural production. However, the practice of budget disposition aimed at promotion the development of agricultural production has its own shortcomings [7].

Regional agrarian complexes can entry into international food markets in different ways. They also have unequal conditions of production and sale of competitive farm products, food products and food [8]. That is why, due to the limited financial capabilities of the state, this level of support is not sufficient in many areas. This problem is especially relevant for the Saratov region, which is one of the largest agricultural regions in Russia and Povolzhye. Saratov region has a significant potential for food production. In 2011 share of agriculture in gross regional

product was of 12.6% (in the Russian Federation it was about 5.0%).

Developed nation allocates 65-70% of GDP for village support. This product is produced in the agricultural sector. As for Russia, it allocates not more than 12%. An amount of financial support for agriculture per 1 ha of agricultural land in the countries of European Community in recent years amounted to \$300, in Japan – \$473, in the USA – \$324, in Canada – \$188, and in Russia – only \$10 [9].

In 2008-2011 total sum of state support for agriculture in the Saratov region amounted to \$475.6 million, including \$247.0 million from the regional budget. A positive aspect is the fact that call for federal funds to the region has increased 1.4 times compared to 2009 and by 21% compared to 2010 when the share of the regional budget in the financing of agro-industrial complex decreased to 44%.

In 2011, this sector received \$12.9 million, including \$74.1 million from the federal budget (18% more than in 2010). In 2011 the share of funding for agriculture in the region was 6.1% of the consolidated budget of the region.

However, amount allocated to agricultural commodity producers of the Saratov region is much lower not only than the level of developed market economies but than the level in leading Russian agrarian regions and Privolzhsky Federal Districts.

Comparative analysis with neighbouring regions in PFD shows that the total sum of state support for agriculture was one of the lowest and amounted to \$22.7 in the Saratov region in 2011 (per 1 ha of arable land). For example, in 2011 the sum amounted to \$95.0 and \$57.8 in the Republic of Mordovia and in the Republic of Bashkortostan (Figure).

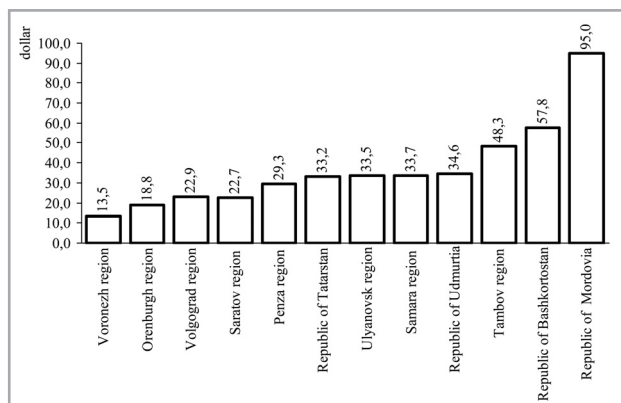


Fig. : Total sum of support for agricultural producers from regional budget in 2011 (per 1 ha of arable land)
Source: [1]

Thanks to the system of state support measures they are created favourable conditions for investors attracting in the sector. In 2008-2011, \$741.2 million were invested in the fixed assets of enterprises and organizations (more than \$463.2 million of them were invested in agriculture).

However, the financial performance results in the Saratov region still do not allow competing with commodity producers from other WTO member countries. Despite the fact that the number of profitable agricultural enterprises of the public sector is much higher than losing ones, the level of is still low and prevents the expanded reproduction.

Essentially, public support should encourage agro-production and be an instrument of market regulation. Nevertheless, there are a lot of questions concerning forms of state support providing. In addition, agricultural commodity producers are dissatisfied with mechanism of design of state support among regions, geographical zones, districts, etc.

It is justified by the difference in natural-climatic and economic conditions

that affect the productivity and the efficiency of production, especially crop production.

Years ago classic of economic theory have found that a variety of natural-economic conditions of economic activity determines different efficiency of live labor and embodied labor that influences on yield. Unequal conditions of agricultural activities contribute to disparities in economic and financial indicators of business entities, differentiate income and rent [10].

Because of it arrangement of the main types of agricultural products is carrying out taking into consideration the factors that are different in the Saratov region. In this regard we can distinguish seven microzones (Table 1).

The main task of agricultural commodity producers subsidizing is compensation of share of the production costs to stimulate growth of the total of output and reduce its production cost. During last years state support allocated to crop production has been distributing among agricultural commodity proportionally crop area, the volume of seed and fertilizer purchases, etc. But it didn't take into account soil and climatic and economic conditions. The result of this situation has become a contradictory situation: the worse the conditions for the production of agricultural goods, the less the amount of cost compensation per unit of the product.

For the purpose of objectivity, we propose a mechanism of differentiate disposition of the state support among agricultural commodity producers due to the natural-climatic and organizational-economic conditions of economic management, which is carried out in several stages.

In the first stage, the differentiate indexes were determined taking into account climatic conditions. In our opinion, calculated normative production prime cost of production should be the main criterion for their calculation. It is determining for each microzone, taking into account actually possible or biological productivity of the main agricultural crops with the same technology for their cultivation.

As Saratov region specializes in the production of grain and it is grown in all microzones, it is proposed to calculate actually possible yield of spring crops, using the procedure of academician Schatilov [11] according to the formula (1):

$$APY = \frac{100 \times E}{K_w} K_{hoz}, \quad (1)$$

where APY – yield, dt/ha; K_w – water-use ratio, mm/dt; K_{hoz} – the ratio of marketable output (grain) to total biomass.

The data presented in the table 1 indicate that calculated actually possible yield of summer grain crops changes from 11.0 dt/ha in South-east Levoberezhnye microzone to 17.9 dt/ha in West Pravoberezhnye microzone.

The cost of production of 1 quintal of grain can be calculated on the basis of standard routings for microzones of the Saratov region. It calculates on the basis of actually possible yield taking into consideration soil and climate, organizational and economic conditions of economic management. Thus the technology for the calculation of the cost of summer grain crops production on all microzones is common and takes into consideration changes in seeding quantity and volume of work on harvesting and primary processing of grain.

Tab. 1: The calculation of really possible yield of spring crops on microzones of Saratov region

Microzones of the Saratov region	The total moisture content of plants (E), mm	Hydrothermal coefficient	Soil fertility, point	Actually probable yield (APY), dt/ha
West Pravoberezhnye	236.0	0.73	77.5	17.9
Central Pravoberezhnye	220.0	0.70	73.0	16.7
North Pravoberezhnye	219.1	0.68	67.0	16.6
South Pravoberezhnye	200.8	0.60	61.5	15.2
North Levoberezhnye	192.3	0.53	62.0	14.6
Central Levoberezhnye	163.4	0.43	52.5	12.4
South-East Levoberezhnye	144.5	0.40	43.0	11.0
An average of the region	181.6	0.58	56.5	13.8

Source: [1]

Calculation the cost of 1 quintal of grain was held by the equation 2:

$$C_{gi} = \frac{Z_i}{APY_i}, \quad (2)$$

where C_{gi} – cost of 1 quintal of grain in the i -th microzone, \$; Z_i – productive costs for on 1 hectare of grain crops in the i -th microzone calculated on the basis of process ship, \$; APY_i – actually possible yield of grain crops from 1 ha in the i -th microzone, cwt.

In order to dispose state support for crop production according to the region's microzones, differentiate indexes can be determined as follows:

$$K_z = C_{ig}/C_{reg}, \quad (3)$$

where K_z – zonal coefficient on the natural-climatic conditions of production, depending on the location of the entity; C_{ig} – estimated production cost of 1 quintal of grain, calculated on the basis of the actually possible crop yield in the i -th microzone; C_{reg} – estimated production cost of 1 quintal of grain, calculated on the basis of the actually possible crop yield at the average of the region.

The data in the Table 2 suggest that the use of the proposed method of calculating coefficients of the differentiated disposition of state support for microzones of the region vary from 0.85 to 1.16. It allows agricultural commodity producers having similar starting economic conditions in the production of crop products.

In the second stage it is necessary to calculate the differentiate indexes that take into account the efficiency of expenditures allocated to the agricultural commodity producers by the state. As a criterion for differentiation is proposed to use an indicator of intensity of crop area by microzones it is offered to be a criterion for disposition. This criterion can be calculated as follows:

$$I_g = Y_i/Y_{gj}, \quad (4)$$

where I_g – the index of the intensity of crop area use in the municipal district; Y_i – the average yield of grain and leguminous crops in the i -th district for the preceding 5 years; Y_{gj} – the average yield of grain and leguminous crops in the j -th microzone for the preceding 5 years.

The average yield of grain and leguminous crops is determined on the basis of official statistics for the preceding 5 years by districts and by microzones of the Saratov region.

To distribute the entire amount provided state support among agricultural producers, real crop area in the previous year should be transferred into a conditional crop area according to the following equation:

$$S_{ci} = S_i I_g K_g, \quad (5)$$

where S_{ci} – conditional crop area of the i -th district; S_i – crop area in the previous year in the i -th district, ha; I_g – the index of

the intensity of crop area use in i -th municipal district; K_g – zonal coefficient on the natural-climatic conditions of production.

Agricultural producers are engaged in the production of not only grain crops, but of crops, and the level of their production cost is high. That is why at transfer into a conditional crop area following correction factors should be used: sugar beet – 1.8; potatoes – 3.3; vegetables of open ground – 5.4.

The last stage of the differentiate disposition of state support is the determination of rate of subsidies for 1 ha of reference crop area that is single for the region. For this purpose it is proposed to use the following equation:

$$C_s = L/\sum S_{ri}, \quad (6)$$

where C_s – rate of subsidies for 1 ha of reference crop area, \$; L – the limit of funds allocated for the provision of state support for the crop production sector, \$; $\sum S_{ri}$ – total reference crop area in the region during the previous year, conditional hectare.

Limits of budgetary funds for agricultural commodity producers for every municipal district can be calculated by the following formula:

$$L_i = \sum S_{ri} C_s, \quad (7)$$

where L_i – limits of budgetary funds for crop production sector in the i -th municipal district, \$; $\sum S_{ri}$ – total reference crop area in the region during the previous year, conditional hectare; C_s – amount of subsidies for 1 ha of reference crop area, \$.

The way of proposed mechanism activity can be seen from the data in the Table 3, where we offered a draft distribution of funds of unbounded state support in the amount provided by the federal and regional budgets in Saratov region for 2013.

Thus, using indexes due to the climatic conditions, amount of subsidies for 1 ha of crop area according to microzones will vary from \$9.6 in Western Pravoberezhye to \$13.2 in South-East Levoberezhye. On a regional average this index will amount to 11.0 \$/ha of crop area.

Using the ratio of intensity of use of arable land will allow differentiating an amount of subsidies in the microzone. For example, subsidies for 1 ha of crop area in municipal districts of South-East microzone will vary from \$11.3 to \$19.4. It will provide a more efficient use of state support, as the yield of crops by \$1 will be relatively equal by districts and business entities.

Conclusions. Thus, in terms of Russia's accession to the WTO there is the need to adjust the measures of state support for the development of agricultural production. At the present stage it is necessary to develop a new system of state support for the agricultural sector in accordance with international requirements. It is also necessary to change methodological approaches to the problem of support for the agricultural sector.

Existing forms and methods of state support don't contribute formation of equal organizational and economic conditions of economic management that is why it is necessary to improve them. In general, we believe that the approaches to determine the amount of state support for agricultural commodity producers should be evidence-based and aligned with the goals and objectives outlined in both state and regional programs of agricultural development.

The developed method of differentiate disposition of state support for agricultural commodity in dependence with natural-climatic and organizational-economic conditions of economic management takes into account not only the climatic features of the entity location, but the intensity of its arable land use. Its use guarantees relatively equal starting conditions for the crop production and improvement of the effectiveness of state support.

Tab. 2: Calculation of factors to take into account climatic conditions in the differential mechanism of disposition of state support for microzones in Saratov region

Microzones of the Saratov region	Actually possible yield, dt/ha	Production costs per 1 ha of spring grains – total amount, \$	The estimated production cost of 1 quintal of grain, \$	Zonal coefficient on the natural-climatic conditions of production, K_z
West	17.9	183.5	10.2	0.85
Central Pravoberezhye	16.7	173.9	10.4	0.87
North Pravoberezhye	16.6	175.3	10.7	0.89
South Pravoberezhye	15.2	167.7	11.0	0.92
North Levoberezhye	14.6	166.9	11.4	0.95
Central Levoberezhye	12.4	159.5	12.8	1.07
South-East Levoberezhye	11.0	153.6	14.0	1.16
An average of the region	13.8	165.6	12.0	1.00

Source: [1]

Tab. 3: Draft distribution of subsidies to agricultural producers for unbound support for agricultural commodity producers in crop production sector

Microzones, municipal districts	Adjusted crop area under the crop in 2012, thousands of hectare	index of the intensity of crop area	Zone indexes	Reference crop area, conditional hectare	rate of subsidies for 1 ha of reference crop area, \$	Amount of subsidies, thousands of dollars	amount of subsidies for 1 ha of reference crop area, \$
Microzones in Pravoberezhnye:							
West	622.4	1.000	0.850	531.0	11.2	5945.8	9.6
Central	495.1	1.000	0.870	431.1	11.2	4826.6	9.7
North	306.1	1.000	0.890	274.1	11.2	3068.9	10.0
South	234.7	1.000	0.920	215.4	11.2	2412.1	10.3
Microzones in Levoberezhnye:							
North	620.4	1.000	0.950	586.2	11.2	6563.3	10.6
Central	724.1	1.000	1.070	802.6	11.2	8986.5	12.4
South-East – total amount	602.5	1.000	1.160	709.2	11.2	7941.1	13.2
Including municipal districts:							
Aleksandrov-Gay	8.1	1.493	1.160	14.2	11.2	158.5	19.4
Dergachi	142.3	1.164	1.160	193.1	11.2	2162.4	15.2
Novouzensk	122.7	0.910	1.160	130.1	11.2	1456.7	11.9
Ozinki	59.6	0.866	1.160	59.8	11.2	670.1	11.2
Perelyub	172.0	1.000	1.160	199.6	11.2	2234.4	13.0
Piterki	97.8	0.985	1.160	112.4	11.2	1259.0	12.9
Saratov region, total amount	3605.3	1.000	1.000	3549.6	11.2	39744.3	11.0

Source: [1]

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Статья поступила в редакцию 01.10.2013

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