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GOVERNMENT SUPPORT OF AGRICULTURAL PRODUCTION GIVEN THE NATURAL CLIMATIC CONDITIONS AND THE PRODUCTION ENVIRONMENT OF UKRAINE

Introduction. *There is a need to develop fundamentally new theoretical methodological approach that would successfully solve the problems of economy and management in the field of government support for agricultural production.*

Problem Statement. *Recommendations in favor of expediency of government support measures for agricultural production are questioned in Ukraine and in other world countries. The importance of agricultural production for the economy of Ukraine and the importance of government support for its development are drivers of further research.*

Purpose. *The purpose is to substantiate the expediency of government support of agricultural production on the basis of the analysis of natural climatic and production factors to ensure reproduction, efficient use of budget funds, and growth of agricultural production.*

Materials and Methods. *The following methods have been used: monographic, scientific abstraction and constructive (while forming the basics of general methodology); structurally-functional connections (during the study of variational diversity of natural climatic and productive conditions of Ukraine as the main criterion for the creation and functioning of government support for agricultural production); a combination of quantitative and qualitative analysis (while forming relationships among the cost parameters of the "green", "yellow", and "blue boxes").*

Results. *The situation regarding government support in Ukraine has been analyzed through the prism of natural climatic and productive factors. Ukraine is characterized by a rather large spatial and geographical diversity. To estimate the intensity and trends in the production development, the indicator of agricultural production output has been used.*

Conclusions. *We suggest that as the synthetic soil quality index of regional lands increases, the budget expenditure shall decrease, and vice versa.*

Keywords: government support of agricultural production, 'yellow", "green", "red boxes," and soil quality rating.

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Government support is related to government regulation of the economy. Both the first and the second are the government's relationship with the producers. They can be both weakened and strengthened by state influence. It should be noted that at present the implementation of government support measures in academia involves two directions, two peculiar alternative methodological approaches, two concepts, two assessments, two options of recommendations.

In the first option, it is considered that government support with its metamorphoses distorts the market situation, leads to deepening of the profit-generating bias, and stimulates further market failures. It is recognized that the best form of government support for production is one that is completely absent. Government support can only hurt the market, whereas the latter shall be given full freedom in order to be able to generate sustainable economic development. It is recommended to refrain from using government support in agricultural sector and rely on the fact that, for example, in 3—4 years, economically weak businesses will go bankrupt and cease to exist as uncompetitive. On the contrary, economically strong business entities will strengthen, expand markets, improve technology and, on this basis, overcome profit constraints, and will ensure high profitability. Government support is now a burdensome form of misuse of state resources. A special field of economic tension is being created between receiving and non-receiving enterprises of government support. In addition, the experience of many countries in the world proves that not always increase in budget allocations contributes to the improvement of the situation in the industry, increase the competitiveness of producers. Budget payments can increase, but real revenues to producers, production efficiency decreases. The economy functions effectively if the state does not interfere. Production shall be the exclusive sphere of private business. When the expediency of government support for agricultural production is denied, the experiences of England, Iceland, the Netherlands, and New Zealand are generally mentioned.

In the second option, it is stated that agriculture needs government support, because of the seasonality of production and a large period of capital cycle. The most significant arguments in favor of government support are climatic conditions, volatility of commodity producers' prices and revenues, poor investment attractiveness, and the need to ensure the stability of retail food prices. Government support is caused by unequal conditions for agriculture: temperature regime (January temperature is 4 °C in Polissia, 6 °C in the forest-steppe zone, and 5 °C in the steppe zone), water supply (600—680 mm precipitations in Polissia, 450—550 mm in the forest-steppe zone, and 300—450 mm in the steppe zone), soil fertility, water and wind erosion, availability of other natural resources; the level of income of farmers much lower than in other sectors of the economy; settlements in rural areas are declining and large areas of the country are becoming deserted.

The scientific literature proves that the development of production depends directly on science, technology, training of highly qualified personnel, government support, and the latter under the conditions of their implementation act as they provide social and economic growth. Emphasis is placed on the fact that a state with greater capacity for government support can be significantly effective. However, the state can have considerable potential for government support and not be effective enough if that potential is not used properly.

It is believed that the level of production, employment, income and prices is formed on the basis of increased demand, investment, increased exports, and government support. The main driving force behind government support is profit. Naturally, the market alone cannot provide full economic stability, and in order to achieve economic stability, to mitigate economic downturns, it is imperative to introduce government support. There is no ideal market in reality and that is why rational market relations can develop on the basis of government support.

It is quite clear that government support legislation shall regulate actions and prevent the expression of their own creative interpretations. It is necessary to provide government support to producers who are able to increase sales of goods and services both in the domestic and foreign markets. With the government support producers, the role of the state is fundamentally transformed. The state becomes coordinator center concerning them.

Government support can only be cost effective when the economy is efficient. The path to creation of an effective government support is quite complex. When proving the appropriateness of government support, traditionally it is advisable to refer to the experience of Germany, France, Spain, Australia, the USA, and Canada. It is quite clear that there is a precedent for the content of both the first and second options. The positions of scientists are debatable. They fit into one vector, alternative ideas. It is significant that both approaches to forming government support are eligible for recognition. In each of the options, the recommendations have their own dominance, evidence, and doubts.

However, to find and understand on a scientific basis the necessary degree of understanding of the content of the alternative recommendations, and to outline them from the point of view of the most specific and universal evaluations, as well as objective processes, it is reasonable to carry out a special analysis of the situation regarding government support in Ukraine through the prism of natural climatic and production factors, namely two criteria that are measuring instruments:

- Variational diversity of natural and climatic conditions of Ukraine. That is a spatial dimension;
- Intensity and trends in the production development. That is a time dimension.

The first methodical step. The first step is to take into account the variational diversity of the naturally-climatic conditions of Ukraine, so the issues of spatial dimension are raised. In order to solve the problem, it is important to have a sufficiently clear and scientifically sound methodology that integrates the natural and climatic situation as a whole. It turned out that in this case, it is most rational to rely on the results of V.V. Medvedev and I.V. Plisko [7, 19—21] who managed to develop and to implement the so-called soil quality rating (appraisal) of arable lands of Ukraine, in the calculations of which the soil properties, the peculiarities of climatic conditions, and the influence of individual factors on the appraisal are taken into account.

Basic provisions of appraisal (rating) of Ukrainian lands provide carrying out with the inclusion of an expanded list of indicators of potential and effective soil fertility: granulometric composition and humus content, which form the structure, structure of soil and its ratio rocks of different size; depth and density of the root-containing structure layers that determine the amount of soil available to the roots; pH (determines the reaction and thus the quality of the soil solution), water-thermal and nutrient regimes during the critical periods of plant development and their yield. This gives grounds to conclude that a holistic soil-climate system shall be evaluated and one shall receive the most objective quality rating assessment only under such conditions [7, p. 19—21].

Let us turn again to research by V.V. Medvedev and I.V. Plisko [7, 19—21] regarding soil quality rating, climate index, and synthetic land rating. The analysis of the soil quality rating indicates the range of its fluctuations is quite wide, from less than 30 to 70, but in the regions, it is substantially narrowed, from 37, in Kherson, Ivano-Frankivsk, and Chernivtsi Oblasts to 61, in Dnipropetrovsk Oblast. The forest-steppe and north-steppe regions have the highest soil quality rating for typical chernozem, podzolic (gray), and ordinary soils.

The climate indexes are also characterized by a wide range of values. The highest scores belong to the western regions (60—65 points); Polissia (within 55—65), the forest-steppe zone (about 45—50 points). The lowest climate indexes are recorded in the steppe zone (less than 40 points), especially in Kherson and Mykolaiv Oblasts and in the Crimea. The influence of climatic factors on the formation of quality ratings is very significant.

The synthetic land ratings that take into account the soil quality rating and the climate index differ significantly in many regions of the country. In terms of synthetic land rating, forest-steppe and north-steppe regions of Dnipropetrovsk, Kirovohrad, Poltava, and Cherkasy Oblasts have advantage, whereas Kherson, Mykolaiv, Luhansk Oblasts, and the Crimea have the worst conditions. Therefore, it is no accident that the first group of regions is traditionally the breadbasket of the country; the second one cannot be attributed to the breadbasket, although under favorable conditions, relatively high yields are possible there. The soil capacity facilitates, while the climate conditions restrain the achievement [7, 19—21].

In order to have a meaningful idea of the dependence among the soil ratings of the most typical soils, the climate index in the respective contours and the synthetic land rating, a corresponding table is formed (Table 1).

According to the Table above, it is easy to make sure that the highest soil humidity values has type of soil with the little humus and the smallest type of soil with turf-slightly podzolic sandy and clayey-sandy. Within the considered codification of soils, ie from 3 to 24 positions, soil quality rating and synthetic land rating improves, while the climate index worsens.

With regard to government support, there is, in particular, a need to analyze soil quality rating, climate index, and synthetic land ratings by individual soils of regions. The results of this analysis are shown in Table 2.

Table 2 testifies to another imbalance of soil quality ratings, climate indexes, and synthetic land ratings. For example, soil quality rating of the third group of regions increases by 25% as compared with the first group, while the climate index decreases by almost 20%; the synthetic land rating of the third group of regions increases by 10% as compared with the first group, though in terms of soil quality rating it decreases by 15%.

The principle of contradictions of soil quality rating, climate index, and synthetic land rating of soils within the regions requires analyzing the granulometric composition and content of humus, water-heat and nutrient conditions during the critical periods of plant development and their harvest yield and objectively evaluating them instead of smoothing the severity of collisions.

According to the administrative units we will form two territorial geographical vectors, namely: the first chain from east to west: Donetsk, Za-

Table 1. **Soil Quality Rating and Climate Index of the Most Typical Soils and the Synthetic Land Ratings**

Soil code	Soils	Quality Rating		
		Soil	Climate	Land (synthetic)
3	Turf-slightly podzolic sandy and clayey-sandy	41	45	43
10	The black soil, degraded	52	43	48
11	Typical black soil with little humus	56	44	51
12	Typical black soil with medium humus	53	49	51
24	Black soil with salty surface	50	43	46
Average value		**50**	**45**	**49**

Table 2. **Average Soil Quality Ratings, Climate Indexes, and Synthetic Land Ratings by Regions of Ukraine**

Groups	Soils	Ratings		
		Soil	Climate	Synthetic Soil
I	Ivano-Frankivsk, Chernivtsi, Kherson, Zhytomyr, Zakarpattia Oblasts	41	45	43
II	Crimea, Volhynian, Lviv, Ternopil, Vinnytsia, Chernihiv, Kyiv Luhansk, Sumy Oblasts	52	43	48
III	Odesa, Zaporizhzhia, Mykolaiv, Kharkiv, Cherkasy, Donetsk, Poltava, Kirovohrad, Khmelnytskyi, Dnipropetrovsk Oblasts	56	44	51

porizhzhia, Dnipropetrovsk, Kirovograd, Vinnytsia and Ivano-Frankivsk Oblasts; the second chain from north to south: Chernihiv, Kyiv, Cherkasy, Kirovohrad, Mykolaiv, and Odesa Oblasts.

It is quite clear that, within the limits of variation and distribution, to estimate average mean alone is not sufficient to generalize the characteristics of the totality. The average mean reflects the general conditions present in the whole population, but does not cover the individual, individual conditions that form the variation in individual units of the population. At the same time, the study of variation (deviation of individual values from the mean) is essential. First, indicators of variation serve as a characteristic of the typical, the reliability of the environment itself.

At the same time, the study of variation (deviation of individual values from the mean) is essential. First, the figures serve variations characteristic of typicality, reliability of the medium. The smaller the variation, the more average, typical, and conversely, the more individual values of a quality vary, the more they fluctuate around the mean, the less typical it is; second, they serve for uniformity characteristics of processes; third, by examining variation, one can find out the connection and interdependence between phenomena.

For the generalized characteristic of fluctuation (variation) we use the following indicators: the range of variation, the mean linear deviation, the variance, the root mean square deviation, and the coefficient of variation. Consider calculating the variation indicators according to the data in Table 3.

Table 3. **Synthetic Land Ratings of the Two Chains of Regions (values are artificially divided by 10)***

Chain of regions	Number of regions	Synthetic land rating	Average mean of synthetic land rating a region
First	6	5.1; 5.4; 5.4; 4.7; 5.1; 5.1	5.1
Second	6	4.9; 5.2; 5.0; 5.4; 4.2; 4.8	4.9

*Estimated by the authors

A magnitude of variation is the difference between maximum and minimum values of trait ($x_{max} - x_{min}$). In this case, it is equal to 0.7 of synthetic land rating, for the first chain of regions, and 1.1, for the second chain. It should be remembered that the magnitude of variation depends only on the two extreme values of the trait, so, of course, it does not sufficiently reflect its fluctuations. The mean linear deviation is the average of the absolute values of the deviations of all values from their arithmetic mean. The mean linear deviation (unweighted) is calculated by formula (1):

$$i = \frac{\sum (x - \bar{x})}{n} \quad (1)$$

$$i = \frac{0 + 0.3 + 0.3 + 0.4 + 0 + 0}{6} = \frac{1.0}{6} = 0.16 \text{ (synthetic land rating)}. \quad (2)$$

For the second chain of regions [formula (3)]:

$$i = \frac{0 + 0.3 + 0.1 + 0.5 + 0.7 + 0.1}{6} = \frac{1.7}{6} = 0.28 \text{ (synthetic land rating)}. \quad (3)$$

Thus, the average linear deviation of the second chain of regions is greater than that of the first one, by 0.12 synthetic land rating. But the mean linear deviation gives only an approximate characteristic of the variation. It represents the square root of the variance σ^2. The root mean square deviation is calculated as weighted or unweighted. The unweighted root mean square deviation is calculated according to formula (4):

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}. \quad (4)$$

We calculate the mean square deviation according to the data of the analyzed conditions. For the first chain of regions (formula (5)):

$$\sigma_1 = \sqrt{\frac{0.3^2 + 0.3^2 + 0.4^2}{6}} = \sqrt{\frac{0.09 + 0.09 + 0.16}{6}} = \sqrt{\frac{0.196}{6}} = \sqrt{0.033} = 0.19. \quad (5)$$

For the second chain of regions (formula (6)):

$$\sigma_1 = \sqrt{\frac{0.3^2 + 0.1^2 + 0.5^2 + 0.7^2 + 0.1^2}{6}} = \sqrt{\frac{0.09 + 0.01 + 0.25 + 0.49 + 0.01}{6}} = \sqrt{\frac{0.85}{6}} = \sqrt{0.142} = 0.38. \quad (6)$$

Thus, the mean square of deviation characterizes the fluctuation in absolute terms in the same units as the average mean. However, it cannot serve to compare the fluctuations of different sets. The coefficient of variation is used to study the variation of different by character qualities and is calculated as the ratio of the arithmetic mean. This coefficient is an estimate of the homogeneity of the totality, that is, reliability and typicality of average mean.

$$V = \frac{\sigma}{\bar{X}} \cdot 100. \quad (7)$$

Under these conditions, the coefficient of variation is:

For the first chain of domains:

$$V_1 = \frac{0.19}{5.1} \cdot 100 = 0.037 \cdot 100 = 3.7\%. \quad (8)$$

For the second chain of regions:

$$V_1 = \frac{0.38}{4.9} \cdot 100 = 0.078\ \ 100 = 7.8\%. \quad (9)$$

Concerning the specific values of the fluctuation of the index of synthetic land rating, in this case the scientific opinion is formed in the following way:

V <3% is slight fluctuation; V about 5% is average fluctuation; V > 5% is large fluctuation.

Thus, the fluctuations of synthetic land rating of the second chain of regions are much larger than of the first one. In this case, the mean square deviation shows the absolute while the coefficient of variation features the relative limit of the quality fluctuation. Our studies have shown that natural climatic conditions in Ukraine are significantly different. The coefficients of variation decrease from east to west and from north to south, which is a prerequisite for government support measures.

The second methodological step. It becomes necessary to take the second step in assessing the intensity and the production trends in the agroindustrial complex, that is, a time dimension. To address this issue, it is advisable to use, for example,

Table 4. **Total Production Output in Agriculture (UAH million)**

Year	Total production output	Including		Including		Gross production indices, percentages (1990 = 100)
		Planting	Animal husbandry	Agricultural enterprises	Individual Farming	
1990	282774.3	145502.1	13727.2	199161.2	83612.8	100.0
1995	183890.4	106329.7	77560.7	99448.5	84441.6	65.1
2000	151022.3	92838.8	58183.3	57997.6	12206.6	53.5
2005	179605.7	114479.8	65125.9	72764.6	106841.2	63.4
2007	172129.6	105979.4	66150.2	74432.8	97696.7	60.9
2010	194886.4	124554.0	70332.4	94089.1	100797.4	68.8
2011	233696.2	162436.3	71259.9	121053.6	112642.5	82.7
2012	223254.7	149233.3	74021.4	113082.2	110172.4	78.8
2013	252859.1	175895.1	76963.8	136590.1	116268.0	89.5
2014	251438.5	177707.8	73730.7	139058.3	112380.1	88.8
2015	239467.2	168439.1	71028.3	131918.2	107548.6	84.7
2016	254640.4	185052.0	69588.4	145119.1	109521.4	90.05

Developed according to the official data of the Ministry of Agrarian Policy of Ukraine *Panorama of the Agrarian Sector of Ukraine*, K., Expo-Print, 2017.

such an indicator as total production output in agriculture (Table 4).

The data in Table 4 show that the Gross production indices comparing to 1990 in 2000 had sharply decreased and was equaled to 53.4%. From 2000 till 2016, gross production indices had showed steady increase, but still have not reached the level of 1990. Summarizing the results of the study of the problematic aspect, the main point is to get the answer whether objective prerequisites for organizing government support processes and managing such processes in agribusiness exist, concerning naturally-climatic and production conditions of Ukraine? Despite the serious differences of opinion among the scientific community regarding the analyzed discussion points, there is reason to state the following.

The first principle. In assessing the naturally-climatic conditions of Ukraine, it is advisable to refer to the so-called synthetic land ratings (appraisal) [7], in determining of which properties of soils, water-thermal nutritional regime and other factors are taken into account. It is important that assessment of soil ratings refers to soil-climate system. To characterize the synthetic rating of land, it is advisable to use the following indicators: range of variation, mean linear deviation, dispersion, mean square deviation and coefficient of variation.

According to the index of land rating by the first chain of regions: Donetsk, Dnipropetrovsk, Kirovohrad, Vinnytsia, Ivano-Frankivsk, and Zaporizhzhia Oblasts; the coefficient of variation of V_1 is 3.7% from the east to the west. We deal with average fluctuations.

According to land rating for the second chain of regions: Chernihiv, Kyiv, Cherkasy, Kirovograd, Mykolaiv and Odesa Oblasts, from north to south, the coefficient of variation of V_2 is 7.8%. The fluctuations are large. That is why the values of V_1 and V_2 indicate the presence of differences and wide diversity in the natural and climatic conditions of Ukraine.

The second principle. In terms of assessing of trends in production, it is advisable to use such indicators as total production output and gross production indices. The gross production index, as compared with 1990, in 2000, decreased sharply and was equal to 53.4%. From 2000 till 2016, the gross production index showed a steady increase, but still has not reached the level of 1990. The reason for the unsatisfactory and vulnerable state of agricultural production is the ambiguous and unpredictable economic conditions. In order to counteract the absolute decrease in production output in the agroindustrial complex, it is required to translate the mechanism of government support into a new form and into a new content. The mechanism of government support, and more precisely its development, shall not be detached from such a significant factor as synthetic land rating (appraisal). Therefore, it is stated that government support in terms of budget expenditure, shall function in view of the diversity of natural, economic and production conditions, namely: spatial and temporal dimensions; soil, climate and synthetic land rating. These are the main criteria and indicators for building a government support mechanism. Hence the distribution of budget expenditure based on the land geometric area of regions is inappropriate and harmful, since it leads to destructive processes and phenomena.

All economic processes and phenomena, happening on the background of all-Ukrainian aspects of improvement the mechanism of government support for agricultural production is closely in line with the variational diversity of naturally climatic and productive conditions of Ukraine.

It is required that, on the basis of constructive-analytical method, spending among regions have to be distributed by such principles: for the green box, directly in proportion such an indicator as arable land in cultivation (with some clarification on education, etc.) (Table 3). The generalized calculations shall be made according to the following dependence (formula 10):

$$Pg.b. = \frac{Cg.b.}{All} \quad (10)$$

where *P g.b.* is the green box costs, UAH/ha; *Cg.b.*

is the cost of the green box for agriculture in 2008, UAH million; *All* is total arable land under cultivation in Ukraine, thousand ha, provided, that in 2008, the green box value was UAH 3462 million, the arable land under cultivation in Ukraine was 32 444 thousand ha, the green box spending for agriculture amounted to 106.7 UAH/ha. In the approximate version, the green box is distributed among the regions as follows: the Crimea: 106.7 × × 1273 = UAH 135.8 million; Vinnytsia Oblast: UAH 184.5 million; Volhynian Oblast: UAH 72.0 million; Dnipropetrovsk Oblast: UAH 226.7 million; Donetsk Oblast: UAH 176.7 million; Zhytomyr Oblast: UAH 113.1 million; Zakarpattia Oblast: UAH 21.3 million; Zaporizhzhia Oblast: UAH 203.3 million; Ivano-Frankivsk Oblast: UAH 39.7 million; Kyiv Oblast: UAH 145.6 million; Kirovohrad Oblast: UAH 188.0 million; Luhansk Oblast: UAH 140.3 million; Lviv Oblast: UAH 85.0 million; Mykolaiv Oblast: UAH 181.1 million; Odesa Oblast: UAH 220.5 million; Poltava Oblast: UAH 188.8 million; Rivne Oblast: UAH 62.2 million: Sumy Oblast: UAH 131.7 million; Ternopil Oblast: UAH 90.5 million; Kharkiv Oblast: UAH 205.8 million; Kherson Oblast: UAH 189.6 million; Khmelnytskyi Oblast: UAH 133.8 million; Cherkasy Oblast: UAH 135.6 million; Chernihiv Oblast: UAH 146.8 million; and Chernivtsi Oblast: UAH 53.9 million.

At the same time, it is advisable to note that the green box costs among regions have more theoretical than practical value. It should be noted that the distribution itself is first and foremost fundamental in terms of process and trends of the phenomenon development. However, ignoring the proposed allocation procedure is not in favor of building government support for the regions as a complete management system. To determine the real parameters of government support for agricultural production in a particular region, it is necessary to consider additionally such components, as volume of: R&D; implementation of breeding activities in animal husbandry and crop production; preparation, retraining and advanced training of specialists and working personnel for the production sphere; environmental protection, income insurance practices; disaster relief and the like. Speaking about the eligibility aspect of the green box spending allocation, it is necessary to consider those moments, that can prevent digital information from being distorted, as the yellow box is directly proportional to such indicator as arable land in cultivation with obligatory adjustment regarding the synthetic land rating and the achieved competitiveness (Table 3.1). If to return to the green box, then in this case the principles of direct leveling have been applied. So, the greater is the value of arable land in cultivation, the higher are the green box costs. From the methodological point of view, it justifies itself, since, if false representations are generated, they are within the permissible range. Of course, these interpretations do not limit the range of positive benefits of the principle of direct leveling. Problematic principle issue is its practical implementation, namely, the need for an auxiliary adjustment chain. Concerning the yellow box, it should be emphasized that an approach that is considered as appropriate to apply for the green box, is not acceptable to it. In order to comment, why this is so, and not otherwise, we theoretically evaluate the efficiency and effectiveness of public spending among the regions through the prism of the severity of the problem, namely the identification of conditions for the real economic growth of agriculture. Thus, the economic growth of agricultural production shall record and determine a fundamental feature of techniques for the yellow box spending distribution among regions. To find an answer to this and many other questions related to it, we will publish two thoughts.

The first option. The need of "yellow box" spending distribution among regions, taking into account the synthetic land rating that consist of soil quality rating and climate index. Synthetic land rating of Ukraine (in points) varies within the following gradations: 27—32; 33—38; 39—44; 45—50; 51—56, and 57—62. It is revealed that the quality ratings in many regions of the country differ significantly. Assigning a quality rating can be considered as an objective appraisal of land, including arable land under cultivation. In this way conditions for economic entities of the regions are balanced, the differences in organization and production management are removed, the provision of government support to businesses in the weakest regions is increasing. Government support for agricultural production shall be based on economic principles and on a vision of the economic outlook. Alignment of conditions for business entities will return by public good in the near future. The alignment shall be implemented in such a way that the goal of economic development of the agroindustrial complex becomes attainable as soon as possible. There is also a problem: which procedures and tools will be required to make the connection between indicators of "arable land" and "synthetic land rating".

Because the task is set so, that with reduction of synthetic land rating of regions the yellow box spending tended to increase, which corresponded to the alignment process, it is necessary to operate not only by the "arable cultivated ha in cultivation" but its inverse value is an indicator of land converted to synthetic land rating. The latter is calculated by dividing "arable land under cultivation" by "synthetic land rating" (formula (11)):

$$A = \frac{All}{SBL}, \tag{11}$$

where A is the inverse synthetic land rating, All is ha of arable land under cultivation, SBL is synthetic soil land rating. It turned out that inverse synthetic land rating, for example, has the following meanings: the Autonomous Republic of the Crimea: 34.4 thousand ha; Vinnytsia Oblast: 36.8 thousand ha; Volhynian Oblast: 13.7 thousand ha; Dnipropetrovsk Oblast: 39.4 thousand ha; Donetsk Oblast: 32.4 thousand ha; Zhytomyr Oblast: 23.0 thousand ha; Zakarpattia Oblast: 3.9 thousand ha; Zaporizhzhia Oblast: 38.8 thousand ha; Ivano-Frankivsk Oblast: 7.2 thousand ha; Kyiv Oblast: 26.3 thousand ha; Kirovohrad Oblast: 32.6 thousand ha; Luhansk Oblast: 30.5 thousand ha; Lviv Oblast: 15.6 thousand ha; Mykolaiv Oblast: 40.4 thousand ha; Odesa Oblast: 43.1 thousand ha; Poltava Oblast: 33.3 thousand ha; Rivne Oblast: 12.9 thousand ha: Sumy Oblast: 25.2 thousand ha; Ternopil Oblast: 18.8 thousand ha; Kharkiv Oblast: 39.4 thousand ha; Kherson Oblast: 53.8 thousand ha; Khmelnytskyi Oblast: 24.6 thousand ha; Cherkasy Oblast: 23.9 thousand ha; Chernihiv Oblast: 28.1 thousand ha; and Chernivtsi Oblast: 6.7 thousand ha.

Thus, the one conclusion is possible: to create an effective economic conditions alignment of the subjects of the regions, which would fit specifics of natural and climatic conditions of Ukraine, a fundamentally new approach shall be developed, that would successfully solve the problem of improving the system of organization and management in the field of government support of enterprises for the economic growth of agroindustrial complex.

The second option. It is recognized above that the quality ratings vary significantly in many regions of the country. Assigning a quality rating may be considered as an objective appraisal of land, or more precisely, arable land under cultivation. Let us prove that the distribution of the yellow box spending across regions it is advisable to carry out on the basis of values of such indicator as synthetic land rating (in points).

It is clear that the application of the synthetic land ratings of Ukraine (the inverse synthetic land ratings) called to level the yellow box spending among regions or, in other words, to implement measures for limiting yellow box spending for economically strong entities in the regions and at the same time increasing such costs for economically weak economic entities in the regions, while the growth of expenses for economically weak regions entities, which are usually characterized by low values of synthetic land ratings.

Improving the formation of government support for agricultural production within the yellow box appears in the form of specific indicators, numbers that are determined by a specific method. The distribution of yellow box costs is of conceptual importance as it is the basis for preventing the risks posed by fragile climatic conditions and the unstable water regime.

It should be noted here that even with the definition of know-how based on fundamentally new approaches to the formation of yellow box costs, the question that deserves special attention is whether or not there are hidden negative economic complications in the processes discussed above. It turned out that some negative economic complications are observed. The adopted methodology limits the costs of the yellow box to economically strong entities in favor of weak entities. So, the question arises whether there will be a slowdown in the development of economically strong economic entities, in general, and in terms of their competitiveness, in particular. In this case, it should be considered that competitiveness is a leading market category, because it concentrates the economic, scientific, technical, productive and management capabilities of producers. The market has a large number of products that offer different approaches to meet the same needs of the buyer at the same price levels. Producers entering the market always start competing. Under such circumstances preference will be given to goods with high competitiveness, which, per unit of value, best meets the specific need of the consumer.

Of course, the manufacturer shall solve the problem of achieving the competitiveness of its products, since it depends on the efficiency of the producers. Competitiveness is a condition for earning profits and ensuring a stable financial position. Strategy to increase competitiveness shall also take into account such factor as the effective use of government support of enterprises.

In terms of government support agricultural production is relevant to dwell on some issues of product competitiveness, which reflected in work of Gubenko [5, 58]. It should be emphasized that in this case it is interpreted that the concept of competitiveness is used in economic analysis depending on the object of study, and the criteria, characteristics and factors of the dynamics of the competitiveness of goods, enterprises, industry and the national economy as a whole have their own specifics. Competition by the quality index obliges the state, agroindustrial complex, producers to look for ways to improve the product, separating it from the total marketable mass. Because there are multiple suppliers of similar products on the market and the buyer has a choice, the manufacturer wants to improve the quality of the product offered, including the use of budgetary allocations.

It is necessary to redistribute the costs of the yellow box taking into account such indicator as competitiveness. Looking at the indicators of agricultural production by regions (at comparative prices in 2009, UAH million) [8], it becomes clear that some areas are capable to deliver increasing competitiveness dynamics. For competitiveness assessment accepted 2009 data ratio (as the most relevant and typical data for other years) to 2013 data.

As a result of this comparison, the competitiveness coefficients are as follows: Vinnytsia Oblast: 1.1, Volhynian Oblast: 1.1, Dnipropetrovsk Oblast: 1.3, Zakarpattia Oblast: 1.1, Zaporizhzhia Oblast: 1.2, Kirovohrad Oblast: 1.4, Luhansk Oblast: 1.2, Odesa Oblast: 1.3, Poltava Oblast: 1.4, Rivne Oblast: 1.2, Kharkiv Oblast: 1.1, Kherson Oblast: 1.1, Cherkasy Oblast: 1.1, Chernivtsi Oblast: 1.1, and Chernihiv Oblast: 1.2. With this in mind, the indicators converted to synthetic land ratings, ha of arable land under cultivation have been adjusted.

The further generalized calculations shall be performed according to the following dependence (formula (12)):

$$A = \frac{All}{A * C}, \tag{12}$$

where P y.b. is the yellow box costs, UAH / ha; C *y.b.* is the yellow box value for agriculture in 2008, million UAH; A is the inverse synthetic land rating, ha; C is coefficient of competitiveness; provided that the cost of the yellow box in 2008 is UAH 2271 million, A (the inverse synthetic land rating) is 780.9 ha, P y.b. (the yellow box costs) is UAH 2908/ha. The approximate distribution of the cost of the yellow box among the regions is as follows: the Autonomous Republic of the Crimea: 2908 × 34.4 = 100 UAH million; Vinnytsia Oblast: UAH 118.0 million; Volhynian Oblast: UAH 43.9 million; Dnipropetrovsk Oblast: UAH 148.8 million; Donetsk Oblast: UAH 94.2 million; Zhytomyr Oblast: UAH 66.9 million; Zakarpattia Oblast: UAH 12.5 million; Zaporizhzhia Oblast: UAH 135.5 million; Ivano-Frankivsk Oblast: UAH 20.9 million; Kyiv Oblast: UAH 91.9 million; Kirovohrad Oblast: UAH 132.6 million; Luhansk Oblast: UAH 106.4 million; Lviv Oblast: UAH 45.4 million; Mykolaiv Oblast: UAH 117,5 million; Odesa Oblast: UAH 162.8 million; Poltava Oblast: UAH 135.5 million; Rivne Oblast: UAH 45.1 million: Sumy Oblast: UAH 73.3 million; Ternopil Oblast: UAH 54.7 million; Kharkiv Oblast: UAH 125.9 million; Kherson Oblast: UAH 171.9 million; Khmelnytskyi Oblast: UAH 71.5 million; Cherkasy Oblast: UAH 76.5 million; Chernihiv Oblast: UAH 97.9 million; and Chernivtsi Oblast: UAH 21.2 million.

Conclusions

The main criteria and indicators for building a government support mechanism are naturally-climatic conditions and productive conditions. In assessing the naturally-climatic conditions of Ukraine, it is advisable to refer to synthetic land ratings (appraisal) of land. It is important that the soil-climate system is part of the soil ratings assessment. Ukraine is characterized by a rather large geographical diversity. To assess the intensity and trends in the production development, the indicator of the agricultural production output, which is characterized by a slowdown as a result of ambiguity and unpredictability of economic conditions, has been used. We suggest that as the synthetic rating of regional lands increases, the budget expenditure shall decrease, and vice versa.

We propose to distribute the cost of the green box by administrative units (areas) according to the available sizes of arable land. The cost of the yellow box is offered to distribute by regions according to the inverted indicator to synthetic land ratings with a compulsory adjustment to competitiveness. The competitiveness indicator gives the opportunity to get an equivalent cost value with equal values, converted to synthetic land ratings.

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ЗАБЕЗПЕЧЕННЯ ДЕРЖАВНОЇ ПІДТРИМКИ СІЛЬСЬКОГОСПОДАРСЬКОГО ВИРОБНИЦТВА З УРАХУВАННЯМ ПРИРОДНО-КЛІМАТИЧНИХ І ВИРОБНИЧИХ УМОВ УКРАЇНИ

Вступ. Для створення механізму державної підтримки сільськогосподарського виробництва, який би відповідав специфіці структури та завданням сільського господарства України, потрібна розробка принципово нового теоретичного й методологічного підходу, що надав би можливість успішно вирішувати завдання економіки та управління у сфері державної підтримки сільськогосподарського виробництва.

Проблематика. Рекомендації на користь правомірності застосування заходів державної підтримки сільськогосподарського виробництва ставляться під сумнів не лише в Україні, а й в інших країнах світу. Важливість сільськогосподарського виробництва для економіки України та вагомість державної підтримки у його розвитку є драйверами подальших наукових досліджень.

Мета. Обґрунтувати доцільність державної підтримки сільськогосподарського виробництва на основі аналізу природно-кліматичних і виробничих чинників для забезпечення відтворення, ефективного використання бюджетних коштів та зростання обсягів сільськогосподарського виробництва.

Матеріали й методи. Застосовано методи: монографічний, наукової абстракції і конструктивний (при формуванні засад загальної методики); структурно-функціональних зв'язків (під час вивчення варіаційної різноманітності природно-кліматичних і виробничих умов України як основного критерію створення і функціонування державної підтримки сільськогосподарського виробництва); поєднання кількісного та якісного аналізу (при формуванні взаємозв'язку між вартісними параметрами заходів «зеленої», «жовтої», «блакитної скриньок»).

Результати. Здійснено спеціальний аналіз ситуації щодо державної підтримки в Україні через призму природно-кліматичних та виробничих чинників. Для України характерною є досить значна територіально-географічна різноманітність.

Висновки. Запропоновано при зростанні показника синтетичного бонітету земель областей витрати бюджетних коштів скорочувати, а при його зменшенні — збільшувати.

Ключові слова: Державна підтримка сільськогосподарського виробництва, «жовта», «зелена», «червона» скриньки, бонітет грунтів.