

Of the quality of the results of the state assessment of soil and landscape objects

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Abstract. An analysis of the current state of agriculture in the Russian Federation has shown that the recently aggravated economic and environmental problems require significant changes in the technologies used towards their biologization and resource conservation while ensuring the profitability of agricultural production. Increasing crop yields can be achieved only with a high culture of agriculture, the introduction of advanced technologies based on the widespread use of various types of organic fertilizers (manure, straw, siderate) and biological plant protection products and growth regulators. This requires in-depth study of the most important zonal aspects of agriculture, one of which is to determine the relationship between soil fertility and crop productivity with systematic fertilization. Therefore, the development of crop cultivation technologies that ensure high and sustainable yields with high quality, excluding the introduction of increased doses of mineral fertilizers, chemical plant protection products, as well as minimal negative effects on the soil is an urgent task of great theoretical and practical importance.

1 Introduction

Real estate valuation is important for taxation, market value, investments and other financial transactions. The study of the quality of state cadastral valuation results in a particular region, such as Kursk region, will identify possible problems, errors or inconsistencies in valuation. This may lead to improvement of the real estate valuation process, elimination of errors and increased confidence in the valuation results on the part of citizens and businesses [1,2,3].

Quality control of the CV determination includes:

1. Analysis of cadastral value levels of different real estate objects within each municipality and different types of use. The results are presented in Tables and graphs to check compliance with the pricing logic.
2. Additional verification using the results of appraisal zoning of the area to identify significant differences in the price level for different types of facility uses [4,5].

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2 Objects and methods of research

In assessing the quality of the CV determination processes, spot checks of the calculations may be carried out. The result is considered to be confirmed if it corresponds to certain accuracy.

In preparation for the the Kursk Region the federal executive authority that provides public services in the field of registration of rights and cadastral registration of real estate, provides information on real estate objects in the region. A selection of land plots with certain characteristics is made:

- cadastral unit (CadastralBlock);
- cadastral number to the land plot (Cadastral Number);
- cadastral registration date (Date Created);
- type of permitted use of the land plot according to the classifier (Utilization);
- type of permitted use (according to the document) (ByDoc);
- area, sq.m. (Area);
- All-Russian Classifier of Administrative-Territorial Entities (OKATO);
- Russian Federation Address Classifier (KLADR);
- district (Name);
- name of the village council (Name);
- type of settlement (Type);
- settlement (Name);
- name of Horticultural, Market-Gardening and Dacha Associations (Name);
- plot number (house) (Value);
- text description of the address (Note);
- cadastral value, rubles (Value);
- date of CV determination (DateValuation);
- number of the document on the CV approval (DocNumber);
- date of the document approving the CV (DocDate);
- name of the document on the CV approval (DocName).

The information is checked for duplicates and supplemented with data on the type of real estate use in accordance with Chapter III of the MU on SCV. The column "Type of REO use" is named in accordance with Annex 1 of the MU on SCV [6].

The following data (by priority) is used in identifying the segment and sub-segment of the assessment objects:

- information provided in the column "Permitted use by document (ByDoc)";
- data on the CCO on the land contained in the Unified State Register of Natural Resources;
- information provided in the column "Permitted Use by Classifier (Utilization)";
- data presented in the column "Text description of the address (Note)", "Name of Horticultural, Market-Gardening and Dacha Associations (Name)";
- information from electronic service of Rosreestr "Public cadastral map";
- information provided in the public domain (data on land plots based on their addresses, viewed);
- data on the use of real estate objects, presented in the report prepared during the previous round of valuation;
- data on the use of real estate objects, established in the process of challenging the cadastral value [7].

During segmentation, the lack of information about the classification of REO is determined. For this purpose, the authorized types of land use are requested from the

administrations of municipal districts of Kursk region. The received answers help to define a segment for all plots.

For a more detailed analysis of the "Agricultural Use" segment, the electronic service of Rosreestr "Public Cadastral Map" and other geoinformation services are used to study map images of land plots with permitted types of use:

- "for agricultural production";
- "for personal subsidiary farming";
- "for peasant farming";
- other types of use, where the presence of CCO is not excluded.

When analyzing land plots and construction objects, queries are sent to clarify the permitted use and to determine segment and subsegment numbers.

Data from the Unified State Register of Natural Resources, the municipal district administration and public parcellary plan are used to fill in the columns of segments and subsegments.

The analysis of the address characteristics of the plots has shown outdated names of rural administrations, unreliable information about the belonging of plots to rural administrations, the presence of names of agricultural associations without specifying their names and other contradictions [8].

The following actions are carried out to organize the address characteristics:

- Updating the names of village councils in accordance with the Kursk Region Law No. 48-ZKO "On Municipalities of Kursk Region " dated 14.10.2004;
- Sending requests to the Administration of municipal districts to clarify the belonging of land plots to village councils. The received data is processed and entered into a special column "Name of Village Council in accordance with the Federal Law No. 48 of October 21, 2004 (current)";
- Transfer of the names of agricultural associations specified in the columns "Settlement (Name)" and "Text description of the address (Note)" to the column "Name of the association's LDS (Name)";
- Allocating the land area with the name of the settlement in the address;
- Deletion of street names from the column "Name of Horticultural, Market-Gardening and Dacha Associations (Name)".

During the segmentation of REO it has been found that for some areas in categories 6 and 3 there is no information on belonging to a certain subsegment. Inquiries have been sent to the Administration of municipal districts of Kursk region to clarify the intended purpose of land plots and CCO [8,9]

After data processing, the intended use of these plots of land has been established. Plots with the permitted use "For gardening by citizens" with an unusually large area have been found. Inquiries have been sent to clarify whether the plots belonged to gardening associations. After processing the responses, sub-segments have been determined: plots belonging to gardening associations belong to the 13th segment. The absence of information about membership indicates that the areas belong to segment 1.

For carrying out works on state cadastral valuation (SCV) the process is conditionally divided into the following stages:

Stage I of preparation for SCV includes:

- processing information from the Unified State Register of Natural Resources,
- collection of data on pricing factors and valuation zoning,
- collection, processing and recording of information on the disputed CV of REO,
- collection and analysis of information on the real estate market to determine pricing factors, as well as description of valuation objects by market segments.

Stage II of CV determination includes:

- determination of the list of real estate objects subject to SCV,
- calculation of the cadastral value of land plots and preparation of a report on the results of SCV.

In Regional budgetary institution «State Cadastral Valuation Center of Kursk region " the quality control system has implemented to ensure compliance of work on state cadastral valuation legislation and methodology, requiring process participants to have appropriate qualifications and participate in professional training programs, defined by the order of the Federal Service for State Registration, Cadastre and Cartography from 15.09.2021 № P/0411 [10].

The quality control system of works carried out by Regional budgetary institution «State Cadastral Valuation Center of the Kursk region " includes several stages of quality control, which are visualized in the Fig. 1:

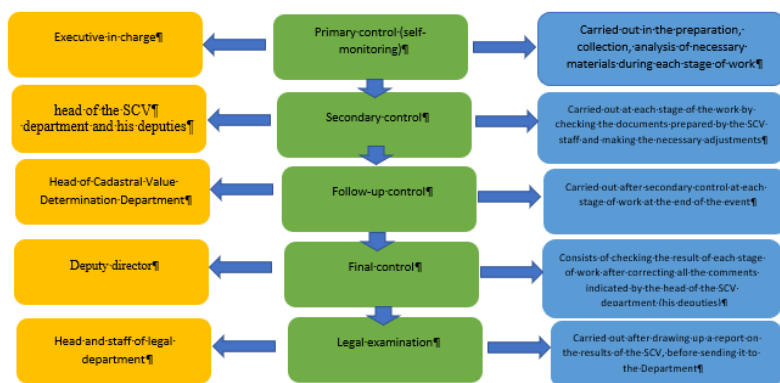


Fig. 1. Scheme of organization as well as the sequence of quality control activities [11].

As can be seen from the figure, the executive of the SCV department performs primary control of materials at each stage of work.

The head of the department and his deputies carry out secondary control and make adjustments.

The final stage of control is conducted by the deputy director when all remarks have been corrected. The forms of work quality control sheets have been approved. The Legal Department performs legal examination of documents before they are sent to Rosreestr.

In order to control the quality of work under the SCV, the forms of control sheets in paper and electronic form have been approved, and legal review of interim reporting documents is performed before they are sent to Rosreestr. Verification of final CV calculations includes analysis of information in the report to prevent errors and violations of requirements.

The final stage of works on state cadastral valuation is the analysis of specific CV indicators, while in the previous round of assessment the actual use of land plots has been taken into account, not only their category [12].

3 Results and discussion

The cadastral values of land in the settlements of Kursk region have been analyzed. We compared the values with the previous data, taking into account only land plots of the districts represented in the List by segments. We have compared the obtained values of Specific cadastral value index with the data from the List and with the previous values of Specific cadastral value index approved by the Decision of the Property Management Committee of Kursk region from 24.11.2021[11].

In addition, there is a comparison of the values of Specific cadastral value index, approved by the Resolution of the Kursk Region Administration dated 02.12.2016 № 904-pa "On approval of the results of the state cadastral appraisal of residential lands in the Kursk region" (group 2 of types of permitted use).

When comparing Specific cadastral value index of the current round of SCV with Specific cadastral value index contained in the List, a decrease is observed (the weighted average value decreased from 146.58 RUB/sq. m to 125.59 RUB/sq. m). This can be explained by the fact that the current round of SCV covered all categories of land as of 01.01.2022, while the previous round of assessment covered only residential land as of 01.01.2021.

The level of cadastral value has decreased in municipal and urban districts. This is observed both when comparing with the data as of 01.01.2021 and with the data for 2016 for land plots intended for dacha and horticultural use.

Compared to the stage of SCV as of 01.01.2016, the cadastral value in the territory of Kursk decreased by 0.76 times (Specific cadastral value index has changed from 477.55 rubles/sq. m to 361.59 rubles/sq. m).

Municipal SCV guidelines do not provide for the categorization of land plots, but land category still influences the real estate market. Land plots in populated areas are usually more expensive than those outside them [12].

A comparative analysis of the average values of Specific cadastral value index of land for dacha and horticultural use as of 01.01.2016, 01.01.2021 and 01.01.2022 (effective) has been carried out.

Table 1. Analysis of the quality of SCV results by years (residential lands) [8].

№ n/n	Name of the municipal district (urban district)	01/01/2016 (validuntil 01/01/2022)	01/01/2021 (validfrom 01/01/2022 to 01/01/2023)	01/01/2022 (validfrom 01/01/2023 topresent)
1	Belovsky	51.53	119.83	56.65
2	Bolshesoldatsky	48.20	103.85	64.85
3	Glushkovsky	107.53	138.09	69.46
4	Gorshechensky	63.16	143.18	57.88
5	Dmitrievsky	50.43	115.66	69.35
6	Zheleznogorsk	115.21	123.15	69.73
7	Zolotukhinsky	95.13	99.23	61.87
8	Kastorensky	106.73	116.52	74.67
9	Konyshesky	106.29	96.64	100.83
10	Korenevsky	125.15	106.03	66.51
11	Kursksky	158.05	122.74	111.60
12	Kurchatovsky	126.41	132.38	110.41
13	Lgovsky	75.55	103.93	59.20
14	Manturovsky	44.07	122.99	60.61
15	Medvensky	47.33	100.15	59.91
16	Oboyansky	101.01	118.43	62.92
17	Octobrsky	128.16	85.50	54.09
18	Ponyrovsky	53.82	98.40	54.50
19	Pristensky	134.82	100.18	88.85
20	Rylsky	109.07	102.92	63.81
21	Sovietsky	128.68	105.33	56.20
22	Solntsevsky	63.16	92.82	74.21
23	Sudzhansky	86.91	104.10	73.28
24	Timsky	35.57	112.54	60.88

25	Fatezhsky	114.68	85.25	75.08
26	Khomutovsky	46.13	119.33	64.14
27	Cheremisinsky	71.43	114.15	56.43
28	Shchigrovsky	60.55	112.98	69.84
29	Zheleznogorsk	477.55	392.32	361.59
30	Kursk	232.68	235.66	202.18
31	Kurchatov	-	-	-
32	Lgov	269.44	89.46	86.28
33	Shchigry	194.76	87.49	86.92
Kursk region (MD and UD contained in the List)		264.67	264.67	222.48

From the data analysis, from 2016 to 2021, the weighted average value of Specific cadastral value index remained almost unchanged, increasing from 232.68 RUB/sq. m to 235.66 RUB/sq. m and then decreasing to 202.18 RUB/sq. m by 2022 due to the SCV of all categories of land [13].

All conclusions are in line with market prices and do not exceed the market value of the land plots. The appraisal zoning was conducted only for segment 13 "Gardening and horticulture, low-rise residential development" (with calculation code 13_ Horticultural, Market-Gardening and Dacha Associations and 13 Individual residential construction). The results of the CV of land plots assigned to this segment were checked for compliance with the results of the appraisal zoning.

According to the results of the appraisal zoning for gardening and horticulture land plots, the following has been established:

- for 1 price zone (less than 75 rubs. /sq. m) the Specific cadastral value index of 7,885 out of 50,479 plots (16%) exceeds the upper limit of the range;
- for the 2nd price zone (75 - 150 rub. /sq. m), the Specific cadastral value index of 6,117 out of 27,050 plots (23%) also exceeds the upper limit of the range;
- for 3 price zone (150 - 350 rub. /sq. m), 13,227 out of 13,227 plots (100%) comply with the established range;
- for the 4th price zone (350 and more RUB/sq. m), 9,970 out of 17,486 plots (57%) are outside the lower boundary of the range. At the same time, the majority of the sites (94%) have a Specific cadastral value index less than the established range by no more than 30%.

4 Conclusion

Thus, out of 25% of the assessed land plots, the values of Specific cadastral value index deviate from the established ranges of appraisal zoning. These deviations in most cases are within the permissible errors and are mainly related to the uncharacteristic for this segment area of land plots. Consequently, it can be concluded that the valuation results do not significantly differ from the price level for the land of this segment. In addition, in order to verify the quality of the SCV results, a sample check of individual calculations and models for determining the cadastral value is carried out.

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