

DEVELOPMENT OF METHODOLOGICAL APPROACH TO MASS (CADASTRAL) VALUATION OF AGRICULTURAL LAND BY TAKING INTO ACCOUNT ITS DEGRADATION DEGREE

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The article deals with the improvement of methodological support of the mass (cadastral) evaluation of agricultural land. The aim of the research is to carry out the review analysis of parameters of negative soil processes' influence on agricultural crops productivity reduction and amount of cadastral cost of lands according to the literary and stock materials. The accent of the conducted research is made on a problematic moment of the account of negative soil processes on agricultural lands. As a result of outcome generalization of scientific researches of stock and methodical materials on the theme the list of soil negatives and their manifestation degree in the territory of Altai Krai is defined. The correlation between the manifestation degree of soil negatives and their effective fertility reduction has been revealed. The generalization of the research results and practical conclusions has shown that the damage from the use of degraded lands in the arable land has quantitative indicators, which can be expressed through the coefficients of yield reduction from the use of degraded soils in the arable land. A procedure for taking into account the coefficients of yield reduction in determining the cadastral value is proposed, the use of which is possible during the state cadastral valuation.

Keywords: mass (cadastral) land valuation, effective fertility accounting, soil negatives, methodology

REFERENCES

1. Adamimova, L.Y., & Polulyakh, Y. G. (2020). Cadastral Valuation of Agricultural Land: Lessons of History, Theory and Practice. *Prirodnye resursy, sreda i obshchestvo [Natural Resources, Environment and Society]*, 2(6), 27–38 [in Russian].
2. Bykova, E. N. (2021). Estimation of Negative Infrastructural Externalities in Determination of Land Value. *Zapiski Gornogo instituta [Notes of the Mining Institute]*, 247(1), 154–170 [in Russian].
3. Gal'chenko, S. A., Zhdanova, R. V., Komarov, S. I., & Rasskazova, A. A. (2020). Improvement of the method of cadastral valuation of agricultural land in order to improve the sustainability of agricultural development. *Mezhdunarodnyy sel'skokhozyaystvennyy zhurnal [International Agricultural Journal]*, 5(377), 5–9 [in Russian].
4. Dubrovskiy, A. V., Il'inykh, A. L., Malygina, O. I., Moskvina, V. N., & Vishnyakova, A. V. (2019). Analysis of pricing factors affecting the cadastral value of real estate. *Vestnik SGUGiT [Vestnik SSUGT]*, 24(2), 150–169 [in Russian].
5. Gennadiev, A. N., Zhidkin, A. P., Olson, K. R., & Kachinskiy, V. L. (2010). Soil erosion under different land use conditions: assessment by magnetic tracer method. *Pochvovedenie [Soil Science]*, 9, 1126–1134 [in Russian].
6. Makht, V. A., & Shishkina, E. S. (2021). Actualization of basic information for cadastral valuation of agricultural lands. In *Sbornik materialov III regional'noy nauchno-prakticheskoy konferentsii: Aktual'nye problemy geodezii, zemleustroystva i kadastra [Proceedings of the III Regional Scientific and Practical Conference: Actual Problems of Geodesy, Land Management and Cadastre]* (pp. 200–204). Omsk: Omsk GAU Publ. [in Russian].

7. Methodical instructions on complex monitoring of soil fertility of agricultural lands (approved by the Ministry of Agriculture of the Russian Federation and the Russian Academy of Agricultural Sciences of September 24, 2003). Retrieved from ConsultantPlus online database [in Russian].
8. Pavlova, V. A. (2010). Implementation of the modern concept of cadastral valuation of agricultural land. In *Sbornik materialov Mezhdunarodnogo agropromyshlennogo kongressa: Innovatsii – osnova razvitiya agropromyshlennogo kompleksa [Proceedings of International Agroindustrial Congress: Innovations – the Basis for the Development of Agro-Industrial Complex]* (pp. 105–106) [in Russian].
9. Duan, X., Bai, Z., Rong, L., Li, Y., Ding, J., Tao, Y., Li, J., Li, J., & Wing, W. (2020). Investigation method for regional soil erosion based on the Chinese Soil Loss Equation and high-resolution spatial data. Case study on the mountainous Yunnan Province, China. *Catena*, 184, 3–16
10. Hong-fen, T., Jie, H., Yue, Z., Lian-qing, Z., & Zhou, S. (2019). Modelling and mapping soil erosion potential in China. *Journal of Integrative Agriculture*, 18(2), 251–264.
11. Uchida, S. (2015). Applicability of satellite remote sensing for mapping hazardous state of land degradation by soil erosion on agricultural areas. *Procedia Environmental Sciences*, 24, 29–34.
12. Karpik, A. P., & Zharnikov, V. B. (2019). On concepts and regularities of land management, cadastre and land monitoring development. *Vestnik SGUGiT [Vestnik SSUGT]*, 24(3), 141–157 [in Russian].
13. Karpik, A. P., Obidenko, V. I., & Pobedinskiy, G. G. (2021). Research of needs of federal executive bodies of the Russian Federation in spatial data. *Geodeziya i kartografiya [Geodesy and Cartography]*, 82(2), 49–63 [in Russian].
14. Sapozhnikov, P. M. (2019). Main problems in carrying out the state cadastral valuation of agricultural land. *Imushchestvennye otnosheniya v Rossiyskoy Federatsii [Property Relations in the Russian Federation]*, 12(219), 111–115 [in Russian].
15. Ivanov, I. V., & et al. (2015). *Evolyutsiya pochv i pochvennogo pokrova. Teoriya, raznoobrazie prirodnoy evolyutsii i antropogennykh transformatsiy pochv [Evolution of soils and soil cover. Theory, diversity of natural evolution and anthropogenic transformation of soils]*. Moscow: GEOS Publ., 925 p. [in Russian].
16. Rozhkov, V. A. (2007). Evaluation of soil erosion hazard. *Bulletin Soil Institute*, No. 59. Retrieved from <https://cyberleninka.ru/article/n/otsenka-erozionnoy-opasnosti-pochv> [in Russian] (accessed May 13, 2021).
17. Kashtanov, A. N. (1974). *Zashchita pochv ot vetrovoy i vodnoy erozii [Protection of soils from wind and water erosion]*. Moscow: Rosselkhozizdat Publ., 207 p. [in Russian].
18. Burlakova, L. M., Vikulov, D. E., Samoylov, S. A., & Meretskiy, V. A. (2006). *Metodicheskie rekomendatsii po opredeleniyu resursnogo potentsiala zemel' sel'skokhozyaystvennykh ugodiy Altayskogo kraya [Methodological recommendations for determining the resource potential of agricultural land in Altai Krai]*. Barnaul: Academy of Agrarian Sciences Publ., 32 p. [in Russian].
19. Kharitonov, A. A., & Chernykh, M. A. (2019). State cadastral evaluation of agricultural land: results, problems, prospects. *Vestnik Voronezhskogo gosudarstvennogo agrarnogo universiteta [Vestnik Voronezh State Agrarian University]*, Vol. 12, No. 2(61), 224–230 [in Russian].
20. Shcherbakova, M. A. (2019). Soil survey and cadastral valuation of agricultural land in the Volgograd region. In *Sbornik nauchnykh statey molodykh issledovateley: Zemleustroystvo i kadastry: aktual'nye problemy i puti ikh resheniya [Collection of Scientific Articles of Young Researchers: Land Management and Cadastres: Current Problems and Solutions]* (pp. 195–198). Volgograd [in Russian].
21. *Eroziya pochv: nauchnye Trudy [Soil erosion: scientific papers]*. (2007). Moscow: Soil Institute im. B. V. Dokuchaev Publ., 322 p. [in Russian].
22. Komarov, S. I., Zhdanova, R. V., Antropov, D. V. (2020). Automation of cadastral valuation of agricultural land. *Mezhdunarodnyy sel'skokhozyaystvennyy zhurnal [International Agricultural Journal]*, 3, 37–41 [in Russian].
23. Kustysheva, I. N., Shchelkunova, D. V., Dubrovskiy, A. V., & Malygina, O. I. (2017). Novelty in the legislation on state cadastral valuation. In *Sbornik materialov Interexpo GEO-Sibir'-2017: Mezhdunarodnoy nauchnoy konferentsii. T. 2. Ekonomicheskoe razvitie Sibiri i Dal'nego Vostoka. Ekonomika prirodopol'zovaniia, zemleustroystvo, lesoustroystvo, upravlenii e nedvizhimost'iu [Proceedings of Interexpo GEO-Siberia-2017: International Scientific Conference: Vol. 2. Economic Development of Siberia and the Far East. Environmental Economics, Land Management, Forestry Management and Property Management]* (pp. 161–167). Novosibirsk: SSUGT Publ. [in Russian].
24. Mar'in, E. V. (2021). On controversial issues of determining the cadastral value of a land plot. *Voprosy ekonomicheskikh nauk [Economic Science Issues]*, 4(110), 29–30 [in Russian].

25. Maryin, E. V. (2021). Peculiarities of regulation of cadastral valuation of land plots. *Voprosy ekonomicheskikh nauk [Economic Science Issues]*, 3(109), 20–21 [in Russian].

26. Kashtanov, A. A., & Meretsky, V. A. (2015). *Proektirovanie sevooborotov v usloviyakh Altayskogo kraya [Designing crop rotations in conditions of Altai Krai]*. Barnaul: IP Kolmogorov A. I. Publ., 52 p. [in Russian].

27. Order of the Ministry of Economic Development of the Russian Federation of 12 May 2017 No. 226. On Approval of Methodological Guidelines for State Cadastral Valuation. Retrieved from Consultant-Plus online database [in Russian]

28. Shishov, L. L. Karmanov, I. I., & Durmanov, D. N. (1987). *Kriterii i modeli plodorodiya pochv [Criteria and models of soil fertility]*. Moscow: Agropromizdat Publ., 183 p. [in Russian].

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