ЛЕСОТЕХНИЧЕСКИ УНИВЕРСИТЕТ
ФАКУЛТЕТ ПО ГОРСКО СТОПАНСТВО
Регистрационен индекс на акта
ФГС-1874/12.03.2026г.

OPINION

on dissertation for obtaining the educational and scientific degree "Doctor" in: field of higher education Agricultural Sciences and Veterinary Medicine, professional field Crop Production, scientific specialty Soil Science

Author of dissertation: Krastena Valerieva Ilieva
Doctoral student (full-time) at the Department "Silviculture" at the University of Forestry (UF), Sofia, Bulgaria.

Dissertation Topic: Assessment of soil resources in the Botevgrad Valley

Reviewer: Assoc. Prof. Boyka Zdravkova Malcheva, PhD, University of Forestry, Field of Higher Education 4: Natural Sciences, Mathematics and Informatics, Professional Field 4.4: Earth Sciences, Scientific Specialty "Ecology and Ecosystem Conservation", appointed as a member of the scientific jury by Order No. RD-ZPS-667 / 24.11.2025 of the Rector of the UF.

1. Relevance of the problem.

The relevance of the issues addressed in the doctoral dissertation fully corresponds to the contemporary scientific and applied needs of soil science and the sustainable management of land resources. Under conditions of increasing anthropogenic pressure and intensifying climate change, the assessment of soil resources acquires key importance for the preservation of soil fertility, rational land use, and the maintenance of ecological balance.

In this context, the dissertation is focused on a comprehensive assessment of soil resources in the Botevgrad Valley - a region characterized by diverse natural conditions, a significant degree of agricultural use, the presence of abandoned agricultural lands, and various forms of anthropogenic impact. The relevance of the study is also determined by the need for a modern interpretation of soil diversity through the application of internationally recognized approaches and integrated quantitative and qualitative assessments of soil indicators. The presented doctoral dissertation concerns a region for which such a detailed characterization of soils has not previously been carried out, which makes the topic significant and relevant.

2. Degree of knowledge of the state of the problem and creative interpretation of the literature review.

The literature review in the doctoral dissertation demonstrates a very good level of familiarity with the current state of the scientific problem under consideration and fulfills its main function - to substantiate the relevance of the study and to provide a theoretical foundation for the subsequent experimental research. The doctoral candidate traces the development of soil studies both internationally and nationally. The candidate convincingly emphasizes the limitations of relative soil assessments, the need for integrated quantitative and qualitative analyses, and the importance of contemporary methods for the spatial interpretation of data.

The doctoral candidate demonstrates a high level of awareness of the problem, the ability for critical evaluation of the literature data, and the capacity for their creative interpretation in the context of the stated research objectives.

3. Aim, objectives, hypotheses and research methods. Relevance of the chosen research methodology to the stated aim and objectives of the dissertation.

The aim of the doctoral dissertation is clearly formulated, scientifically grounded, and consistent with the current state of the problem. The stated objectives are logically structured and consistently lead to the achievement of the main aim.

The selected methodology fully corresponds to the aim and objectives of the study. The applied comprehensive approach - including field, laboratory, statistical, and GIS methods - is appropriately chosen and ensures the reliability and scientific validity of the obtained results.

There is a very good correspondence between the aim, objectives and applied methodology, which I evaluate positively.

4. Visualization and presentation of the results.

For the presentation of the results in the doctoral dissertation, contemporary GIS technologies and statistical tools have been used for the visualization and spatial modeling of the results. The tables, figures, and cartographic materials are informative, well structured, and facilitate the comprehension and analysis of the results.

5. Discussion of results and literature used.

The discussion of the results is thorough, logically structured, and substantiated through comparison with data from both Bulgarian and international scientific literature. The author demonstrates a good ability to interpret the obtained results and to formulate well-grounded scientific conclusions.

The list of references is representative and up to date, comprising 170 titles, of which 112 are in Cyrillic and 58 in Latin script.

6. Contributions of the thesis.

In the dissertation, the scientific contributions are summarized in two directions: theoretical–methodological (three contributions formulated) and scientific–applied (six contributions formulated).

Theoretical–methodological contributions

The dissertation enriches scientific knowledge through a comprehensive approach to the assessment of soil resources in the Botevgrad Valley, based on an integrated analysis of morphological, physical, chemical, and biological indicators. Methodological solutions have been developed for their comparable interpretation and spatial assessment in accordance with contemporary classification and diagnostic approaches.

Scientific and applied contributions

The developed assessments and syntheses have clear practical significance for rational land use, soil bonitation, and the sustainable management of soil resources. The obtained results can be used in agroecological planning, soil monitoring, and the development of recommendations for their conservation and efficient use.

7. Assessment of the extent of the dissertator's personal involvement in the contributions.

The presented contributions are the result of the doctoral candidate's independent work and reflect their personal involvement at all stages of the research.

8. Critical comments and questions.

I have no substantial critical remarks or questions regarding the doctoral dissertation. I recommend that the doctoral candidate continue their scientific research in the chosen field and publish the obtained results in specialized scientific journals.

9. Published articles and citations.

The published scientific articles related to the dissertation topic reflect the main results of the research. They confirm the scientific significance of the study and disseminate the obtained results within the scientific community. No citations of these publications by other authors have been presented.

10. Assessment of the publications on the dissertation: number, nature of the publications in which they are printed. Reflections in science - use and citation by other authors.

The doctoral candidate presents four scientific publications and one abstract. Two of the publications are respectively in a journal (Ecologia Balkanica, SJR = 0.192, Q4) and in the proceedings of an international conference (International Conference on Energy Efficiency & Agricultural Engineering – BIO Web of Conferences (conference proceedings series), SJR = 0.19, Q4), indexed in Scopus and WoS-CABI, while the other two publications are in journals (Soil Science, Agrochemistry and Ecology; Bulgarian Journal of Soil Science), indexed in WoS-CABI. One of the publications is in Bulgarian, while the other three are in English. The abstract is in English and is included in the book of abstracts of the international conference: A Century of Forest Knowledge – Education, Innovations, Challenges (CENFORKNOW 2025).

Presented abstract reflects objectively the structure and content of the dissertation.

CONCLUSION:

On the basis of the different research methods learned and applied by the PhD student, the correctly derived experiments, the made generalizations and conclusions, I consider that the presented dissertation meets the requirements of the FRAADB and the Regulations of the University of Forestry for its application, which gives me the reason to evaluate it as **POSITIVE**.

I take the liberty of suggesting that the Honourable Scientific Jury also vote in the affirmative and award the Krastena Valerieva Ilieva the educational and scientific degree ***"Doctor"*** in the scientific specialty "Soil Science".

Date: 10.03.2026
Sofia

PREPARED THE OPINION
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