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STATATENT

On Eng. **Lyubomir Lyudmilov Stoyanov's PhD. Dissertation**
PhD student at the Department of Sustainable Land Use and Real Estate Management, Faculty of Geodesy, University of Architecture, Civil Engineering and Geodesy, Sofia, Bulgaria

Topic of the Dissertation: SOIL-CLIMATIC ASSESSMENT AND ESTABLISHING VINEYARDS FOR WHITE WINES, submitted for defense for the educational and scientific degree "Doctor" in the professional field: 5.7. Architecture, Construction and Geodesy" and scientific specialty: Land Management and Protection of Agricultural Land (incl. Real Estate Management).

Scientific Consultant: Prof. Eng. Margarita Mondeshka-Nedyalkova, PhD

Member of the Scientific Juri: Assos. Prof Eng. Siya Stancheva Veleva, PhD, Department of Sustainable Land Use and Real Estate Management, Faculty of Geodesy, University of Architecture, Civil Engineering and Geodesy, Sofia, Bulgaria, professional field 3.7. Administration and Management, scientific specialty: "Economics and Management"

1. Brief Biographical Information and Description of the Doctoral Student's Scientific Interests

Eng. Lyubomir Lyudmilov Stoyanov graduated the bachelor's degree program "Land and Real Estate Management and Planning" in 2017, and in 2019 the master's program "Management of European Infrastructure Projects" at UACEG - Sofia. He worked as an expert at the Road Infrastructure Agency and the Cadaster Agency. Certified appraiser of Agricultural Land and Permanent Crops, as well as Real Estate. Assistant at UACEG since the beginning of 2020, leading exercises in the disciplines: Soil Science, Ecology, Land Use and Conservation, Agricultural Land Management, Territorial Planning and Real Estate Valuation.
The doctoral student's scientific interests are in the field of soil science, sustainable land use and real estate valuation

2. Review of the PhD Dissertation and Analysis of the Results

2.1. Relevance of the Problem Developed in the Dissertation in Scientific and Applied Terms

In the conditions of global climate change, increasingly frequent droughts and extreme natural phenomena, winegrowers and winemakers will need new and scientifically based approaches, models and criteria for selecting suitable terrains, in order to minimize the risks of low- and poor-quality yields, diseases and soil degradation. In addition, international trends in the wine-growing industry place emphasis on high-quality products with a clearly expressed terroir character, which will increase the competitiveness of Bulgarian wines on the international market. This necessitates the need to combine scientific and theoretical developments with practical guidelines for sustainable management of viticulture in Bulgaria. The dissertation proposes a solution to a problem that is both global - adapting agriculture to climate change, and local - increasing the competitiveness of Bulgarian viticulture through a scientifically based

approach in selecting territories for creating highly productive vines for white wines. In this regard, it can be concluded that the topic of the dissertation is successfully chosen. It is relevant and has great scientific and practical significance. The doctoral student has well substantiated this significance and relevance. He has identified unsolved and incompletely solved problems and, on this basis, has determined which of them he undertakes to solve.

2.2. Degree of Knowledge of the State of the Problem and Creative Interpretation of the Literature

The literary basis of the dissertation work is interdisciplinary, including works in the field of soil science, viticulture, agroclimatology, geography and agricultural resource management. For the purposes of the study, the doctoral student used a total of 118 sources, including in Bulgarian and English. They were actually used and cited in the text of the dissertation. These literary sources are sufficiently diverse and rich to carry out an in-depth scientific study on the given topic. The literary sources were used correctly. The author has carried out a critical analysis and presented a creative interpretation of the literary material by combining classical terroir concepts with modern methods and adapting them to Bulgarian conditions. This in turn makes it possible to distinguish the personal contribution of the doctoral student.

It can be concluded that the doctoral student knows the literature in the field of the research problem. This has helped him logically reach the relevant theoretical and methodological generalizations, methodological solutions and reasoned proposals.

2.3 Consistency of the selected research methodology with the dissertation's aims and objectives

To solve the tasks set and achieve the goal, the doctoral student has combined the use of several research approaches. The methodology applied in the dissertation is built on a parametric, multi-level model for soil-climatic assessment, further developed on the basis of the biological requirements of the vine and adapted to Bulgarian conditions. This choice fully complements the main goal of the study – to provide an objective assessment of the soil-climatic conditions in specific regions for the creation of highly productive vines for white table wines. The methodology proposed by the author integrates elements of established models in the ecological assessment and land classification but adapts them to the biological requirements of the vine, which ensures the scientific novelty of the study. The multi-level model takes into account the soil, climatic and geomorphological factors, through quantitatively expressed scales and assessment matrices, which ensure objectivity and reproducibility of the result.

The methodology has been applied to four typical wine-growing regions (Karlovo, Ruse, Varna and Kavarna), which allows for practical testing of the model and demonstrates its applicability for territorial zoning and planning of viticulture.

In conclusion, we can say that in methodological terms the presented work meets the goals and objectives set in it. It allows for achieving scientific consistency (through parameterization and modeling) and practical applicability (through assessment of specific territories). In this way, theoretical validity is combined with real practical value, which is a key requirement for a successful dissertation.

2.4. Analytical Characterization and Assessment of the Material Forming the Foundation of the Dissertation's Contributions

The dissertation work of Eng. Lyubomir Stoyanov on the topic "Soil-climatic Assessment in the Construction of Vineyards for White Table Wines", for the award of the educational and scientific degree "Doctor" is an in-depth scientific and applied research. It consists of an introduction, an exposition in 3 chapters, a conclusion, appendices, a bibliography, a reference to the contributions and publications on the topic. The scientific work has a total volume of 136

pages, contains a total of 68 graphic and tabular elements (22 figures and 46 tables), which visually present the achieved results and contribute to their easy perception and insight into the essence of the topic. The subject, object, goal and research tasks of the dissertation work are correctly defined. A research thesis is formulated. The structure of the dissertation is logically constructed and is subordinated to the overall development of the research problem, the achievement of the research tasks and goal.
As a result of the above, I conclude that the goal and research objectives of the dissertation have been fulfilled.

2. Assessment of the Correspondence Between the Abstract and the Dissertation and Statement on the Submitted Publications

As a result of my careful acquaintance with the abstract and the content of the dissertation work of Eng. Lyubomir Stoyanov, I found out:

- ✓ The abstract is 72 pages long and has been developed in accordance with the requirements.
- ✓ In terms of content and structure, the abstract fully corresponds to the dissertation work. It reflects the main points in the dissertation and gives a clear idea of the achievements of the doctoral student.
- ✓ The reference to the contributions is correctly made, and the contributions are well highlighted and clearly formulated.

3 publications are indicated, of which 2 are developed in co-authorship and one is independent work. It can be assumed that they are sufficient and that the main points of the dissertation are published in them. It is obvious that the ideas and scientific achievements of the doctoral student have received public recognition and are used by the scientific community.

4. Characteristics and Evaluation of the Contributions in the Dissertation Work

The contributions indicated in the dissertation work are the personal work of the doctoral student. They are of significance for science and practice.

From a scientific point of view, this significance is expressed in the development of an adapted and supplemented multi-level model for soil-climatic assessment, based on the biological requirements of the vine and tailored to Bulgarian conditions. It enriches the theoretical basis and creates a methodological basis for future research.

From a practical point of view, the main contribution is the approbation of the model on real wine-growing regions (Karlovo, Ruse, Kavarna, Varna). The achieved results indicate that the used assessment model can serve as a reliable tool for sustainable zoning, planning and management of wine-growing territories, with a direct impact on the quality of Bulgarian wines and increasing their competitiveness.

3. Critical notes and comments

My careful acquaintance with the dissertation work gives me reason to summarize that it is serious scientific work of significance for theory and practice. It does not contain any significant omissions, inaccuracies or contradictions. At the same time, I also have some critical notes, the most important of which are:

1. The dissertation work contains many tables and figures (46 tables and 22 figures). This is valuable for scientific comprehensiveness, but in places it overloads the presentation and makes it difficult for the reader. It would be good to put some of the detailed data in the Appendices, and to leave only the summarized results in the main text.
2. When analyzing the individual regions (Karlovo, Ruse, Kavarna, Varna) the structure is almost identical, which is methodologically correct, but leads to some duplication. It

is possible to synthesize the results in a common comparative table/map in order to avoid excessive repetition.

3. It would be good to deepen the empirical verification of the model, through long-term field data on yield and quality of production.
4. It would be interesting and useful to include data for future scenarios (e.g. IPCC models) to assess the adaptability of wine-growing regions in the conditions of climate change, as well as to develop an integrated assessment that, in addition to natural conditions, also considers economic viability, social effects and the potential for wine tourism. Of course, this can also be accepted as a guideline for the future scientific work of the doctoral student.

It is necessary to emphasize that the above critical remarks are not of a nature that would belittle the merits of the dissertation work and prevent its overall positive assessment.

4. Заключение.

4. Critical notes and comments

My careful acquaintance with the dissertation work gives me reason to summarize that it is a serious scientific work of significance for theory and practice. It does not contain any significant omissions, inaccuracies or contradictions. At the same time, I also have some critical notes, the most important of which are:

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5. Conclusion

The dissertation work is a comprehensive and conscientious scientific study of a significant and current scientific problem. The research tasks have been successfully completed, and the main goal has been achieved. Scientific and applied contributions have been achieved, which enrich scientific knowledge and support practice. The dissertation work meets the requirements for awarding the requested scientific degree and deserves a high evaluation.

Based on this I give **POSSITIVE assessment** of the developed dissertation work and recommend with conviction to the members of the Scientific Jury **to award Eng. Lyubomir Lyudmilov Stoyanov the educational and scientific degree "Doctor".**

Sofia, 26.08.2025 г. Signature:

/Assos. Prof. Eng. S. Veleva/