335 / 29.07.2025
Registration number and date
UNIVERSITY
of Architecture, Civil Engineering and Geodesy
1 Hr. Smirnenski Blvd., 1046 Sofia, BULGARIA

STATEMENT

On a Ph.D. dissertation submitted for defence for the educational and scientific degree "Doctor of Philosophy" in the professional field: 5.7. Architecture, Construction and Geodesy" and scientific specialty - Land Management and Protection of Agricultural Land (incl. Property Management).

Author of the dissertation: Eng. Lyubomir Lyudmilov Stoyanov, PhD student at the Department of Sustainable Land Use and Property 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", Scientific supervisor: Prof. Dr. Eng. Margarita Mondeshka-Nedyalkova.

Member of the scientific jury: Prof. Dr. Biser Emilov Hristov, University of Forestry, Faculty of Forestry, field of higher education 6. Agricultural Sciences, professional field 6.1 Plant Breeding, scientific specialty: "Soil Science".

Relevance of the problem

The dissertation work of Eng. Lyubomir Lyudmilov Stoyanov is dedicated to a current scientific problem directly related to the modern requirements for the viticulture and winemaking sector in Bulgaria and the efforts to establish the country as a producer of high-quality white wines. In the context of global competition, as well as dynamically changing climatic conditions, the need for a scientifically based approach to the selection of territories for the creation of vineyard plantations is increasingly acute. The quality of the grapes – and hence the wine – depends to a significant extent on the soil and climatic conditions of the respective location.

Purpose and objectives of the dissertation

The aim of the development is to propose a multi-level model that will provide an objective assessment of the soil and climatic conditions of specific regions for the creation of highly productive vineyards for high-quality white wines, based on the biological characteristics and requirements of the relevant grape varieties.

Literature review

The literature review presents previous research and is divided into 5 parts of a total of 57 pages, emphasizing indicators that form the assessment of soil conditions. The dissertation examines the influence of these basic soil indicators that determine the nature and properties of the soil, according to the requirements of different grape varieties. The indicators that form the assessment of soil conditions are: soil profile thickness; soil texture; total porosity; humus content; total carbonate content; soil reaction; groundwater level. The indicators that form the assessment of climatic conditions are: air temperature; temperature sum; annual precipitation sum; amount of precipitation in September and October. It is indicated what the influence of geomorphological conditions is, altitude and exposure.

All of these indicators are well described and cited, and for this purpose various literary sources were used, the total number for the entire dissertation being 118. Of the cited sources, 83 are in Latin and 35 in Cyrillic, which shows a good knowledge of the research in an international aspect.

Objects and methods of research.

The object of study is the territories of the municipalities of Karlovo, Ruse, Kavarna and Varna (Bulgaria), which are characterized by the fact that they traditionally grow vineyards for white wines. The research method includes the application of a stepwise model for impact assessment or a process, which is used in the field of environmental protection, adapted and further developed as a model for soil-climatic assessment of sites for fruit crops. For the purposes of the dissertation, a variation of the new model was used, based on the biological requirements of the vine and further developed by the author of the present dissertation thesis.

Discussion and presentation of results.

The results are presented in 46 tables and 22 figures and maps. Eng. Lyubomir Stoyanov demonstrates a model in the dissertation thesis that is based on a parametric assessment of the most important indicators of soil and climatic conditions, determining the suitability of the territory for growing vineyards for white wines. According to the author, the model consists of four stages and aims to reflect and assess the interaction of the main factors expressing the *terroir*. The author also determines the most important soil and climatic indicators that influence the optimal development of the grapevine plant, selecting seven indicators that play the most important role in assessing soil conditions, as well as four indicators that are most essential for assessing climatic conditions, taking into account varietal differences. At the same time, these are indicators for which it is possible to find data with sufficient statistical reliability and accuracy, corresponding to the purpose of applying the model.

A list of over 90 white wine varieties in different categories is presented. As recommended, i.e. those with the best suitability for the respective wine-growing regions. The largest areas with white wine varieties are grown in the South-Eastern, South-Central and North-Eastern regions of Bulgaria, with predominance over red ones in the North-Eastern, North Central and South-eastern regions of Bulgaria. Full coverage of the varieties determined according to the zoning and the white wine varieties grown is noted.

An assessment of the soil and climatic conditions in connection with the establishment of vineyards for white wines in the Bulgarian municipalities of Karlovo, Ruse, Varna and Kavarna has been made.

Conclusions and contributions:

As a result, a comprehensive conclusion was made on the creation of an evaluation system based on the biological requirements of the vine and its application to four characteristic viticulture regions in Bulgaria.

Guidelines for future research are provided that will help improve the methodology and enrich the scientific base reflecting the interaction between the vine and the environment.

The relevance, as well as the theoretical and applied value of the work is undoubted, important conclusions for science and practice has been obtained. The contributions are concise, original and precisely formulated with a scientific and applied character.

Thesis abstract and publications

The submitted Thesis abstract is 72 pages long and has been prepared in accordance with the requirements, specifically reflecting the set goals and objectives, the conducted analyses and evaluation, conclusion and contributions. In connection with the dissertation thesis, Eng. Lyubomir Lyudmilov Stoyanov has presented 3 publications in the yearbook of UACEG. In one publication he is the first author, and in the second he is an independent one. Participation in a research project is also presented.

Critical notes, questions and recommendations:

The dissertation has many blank lines between the different paragraphs. The introduction lacks the corresponding citations. There are citations in the text that are not given in the references, such as Petrov et al. 1988, WRBSR 2006, WRBSR 2014, etc. There repetitions in the literature review. In some places it is indicated (fig. …) or (table…). There are spelling and technical errors. I am not aware of such a classification - red soils (Chromosols (WRBSR, 2014, p. 31.) The literature review is quite long (57 pages), compared to the volume of the dissertation. The names of the soils are always written with a capital letter.

On page 116, Rendzinas quotes "The humus content is relatively high - about 3-4% (in the shallow soil profiles 2-2.5%); In some varieties, the content of active carbonates is also very high - up to 25-43%". But on page 122 a quote: "At the same time, soils like Rendzians, although they have a better texture, they have a low content of carbonates and humus".

It would be objective to make a real comparison between the methodology used at the national level by Petrov et al. from 1988 and the proposed new evaluation model, in order to demonstrate the advantages of the proposed model.

Despite the critical remarks and recommendations, critical notes in no way belittle the doctoral student's dissertation thesis. The notes should rather be seen as recommendations, mainly for his future research work.

Conclusion

In the course of the implementation of the experimental work on the dissertation, it can be concluded that Eng. Lyubomir Lyudmilov Stoyanov has acquired competence in terms of knowledge and skills for applying a complex methodological approach to creating an evaluation system based on the biological requirements of the vine.

The presented dissertation is evidence of well-conducted research and analysis, which demonstrates a high professional and scientific research culture of the doctoral student. I believe that in terms of relevance, quality of the analyses and achieved scientific contributions of the dissertation. It fully meets the requirements of the ZRASRB for acquiring the educational and scientific degree "Doctor of philosophy".

Based on the opinion made, I give a POSITIVE assessment of the developed dissertation work and consider it reasonable to propose Eng. Lyubomir Lyudmilov Stoyanov to acquire the educational and scientific degree "Doctor of philosophy " in the professional field 5.7. Architecture, Construction and Geodesy" and the scientific specialty - Land Management and Protection of Agricultural Land (including Property Management).

28.07.2025

Signature:.....

/prof. Biser Hristov/