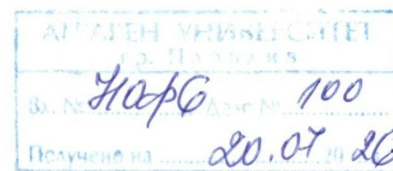


OPINION



on dissertation for obtaining the educational and scientific degree "Doctor" in: field of higher education 6.0 Agricultural Sciences and Veterinary Medicine, professional field 6.1. Crop science, scientific specialty „Viticulture”

Author of dissertation:

Hristo Shterev Kozarov, full-time doctoral student at the Department of Viticulture and Fruit Growing at the Agricultural University, Plovdiv.

Dissertation Topic:

Application of organic products and their impact on the growth and reproductive performance of Merlot variety grown under non-irrigated conditions.

Reviewer: Assoc. Prof. Dr. Denitsa Dimitrova Serbezova, University of Forestry - Sofia, field of higher education 6. Agricultural sciences and veterinary medicine, professional field 6.1. Plant growing, scientific specialty 'Fruit growing' appointed as a member of the Scientific Jury by Order RD 16-775/23.06.2026 of the Rector of the Agricultural university – Plovdiv.

1. Relevance of the problem.

Climate change is having a significant impact on viticulture worldwide. Limiting the usage of mineral fertilizers in viticulture driven by the growing issue of expanding soil nitrate zones, degree of influence of microclimatic and soil characteristics on the physiological and biochemical traits of grapevines, necessitates the development and testing of new organic products which should serve as antitranspirants and help prevent water stress in the vines, particularly under non-irrigated conditions.

Merlot is one of the most widely grown red wine grape varieties in major wine-producing countries around the world and in Bulgaria, owing to its valuable agrobiological and technological qualities.

This makes research into the necessity, prerequisites, and development of new elements for improving wine grape production technology highly valuable from both scientific and economic perspectives.

Based on the above, I believe that presented for opinion work is in accordance with contemporary trends in growing wine varieties of grapes and provides specific answers and recommendations to science and practice. The significance and actuality of the topic is well substantiated by the PhD student in the presented work.

2. Aim, objectives and research methods.

The aim of the dissertation is to determine the potential of organic products and their impact on the growth and reproductive performance of the Merlot variety grown under non-irrigated conditions.

In order to achieve the set aim, specific tasks have been developed.

The methods used are actual and are in accordance with the achievement of the set up aim.

3. Visualization and presentation of the results.

The dissertation work includes 147 standard pages, 29 tables and 54 figures, structured according to the requirements for educational and scientific degree "Doctor".

The presented chapters 'Introduction' and 'Literary Review' are in the volume of 29 pages and cover the problem in details. Impression makes the good inform of the PhD student and the excellent interpretation of the used literary sources.

Thus structured, the dissertation work gave an opportunity the doctoral student to get deep insight into the essence of the processes and to draw accurate conclusions.

4. Discussion of results and literature used.

The section 'Results and discussion' is structured correctly, according to the performed experimental work in connection with the set tasks.

As a result of the obtained data, 13 conclusions were made.

In developing the dissertation work, PhD student Hristo Kozarov used 275 literary sources, 19 in Cyrillic and 256 in Latin, which shows that doctoral student got acquainted in depth with the problems related to the influence of climate change in the cultivation of wine grape varieties.

5. Contributions of the thesis.

Based on the obtained results, 3 scientific and 4 scientific-applied contributions were made, which enrich the knowledge in vine science and practice.

Scientific contributions

It has been established that the application of a lower dose of the soil preparation "Humat Rost" (variant V5) leads to an increase in the functional diversity and metabolic activity of soil microbial communities. The results obtained, confirmed by multivariate statistical analysis (MANOVA), enrich the existing knowledge about the impact of humic preparations on the functional state of the soil microbiome and give reason to assume that optimizing the applied doses can improve the biological activity of the soil.

Higher metabolic activity was demonstrated in variant V5, especially after 96 hours, revealing an increased functional potential of the microbial community and contributing to a better understanding of the mechanisms by which the preparation influences microbiological processes in the soil.

Statistically significant relationships were established between the foliar application of "Humat Rost", the characteristics of the harvest and the organoleptic indicators of the obtained wines. The proven influence of both the harvest year and the doses used on the tasting evaluation provides scientifically based information for optimizing technological solutions in viticulture and winemaking in order to obtain production with higher quality characteristics.

Scientific and applied contributions

It was found that root treatment with a dose of 25 kg/da maintained a higher rate of absorption of amine compounds during the study period. The results obtained contribute to a better understanding of the influence of organic fertilization on the metabolic activity of soil microorganisms and can serve as a basis for optimizing fertilization in vineyard plantations.

The impact of the organic fertilizer "Humat Rost" on the growth and development of the vine was studied. The established influence of climatic conditions on the variability of linear growth and the processes of shoot maturation in the Merlot variety expands the available information on the interaction between fertilization and environmental factors and is important for the adaptation of technological practices to specific climatic conditions.

Practical guidelines have been developed to increase the viability of winter buds by optimizing the sampling period and applying organic fertilization. The proposed solutions can be used in viticultural practice to limit the adverse impact of late spring cold snaps and to preserve the productive potential of grapevine plantations.

Relationships between the nutritional regime, the timing of feeding and the formation of the vegetative and reproductive organs of the vine was established. These results are important both for the further development of scientific knowledge about the physiology of the vine, and for the improvement of technological schemes for feeding in order to increase the productivity and quality of the production.

6. Critical comments and questions.

I have no comments or questions for the PhD student.

7. Published articles and citations.

PhD student Hristo Kozarov has presented one single-authored publication based on his dissertation, which was published in the "*Journal of Mountain Agriculture on the Balkans*" and meets the minimum science-metric requirements.

The PhD student has not presented any citations.

The presented abstract objectively reflects the structure and content of the dissertation work.

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 LDASRB and the Regulations of the Agricultural university – Plovdiv 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 **POSITIVE** and award Hristo Shterev Kozarov the educational and scientific degree "Doctor" in the scientific specialty „Viticulture”.

Date: 13.07.2026
Plovdiv

Подписите в този документ са заличени
във връзка с чл.4, т.1 от Регламент (ЕС)
2016/679
(Общ Регламент относно защитата на
данни).