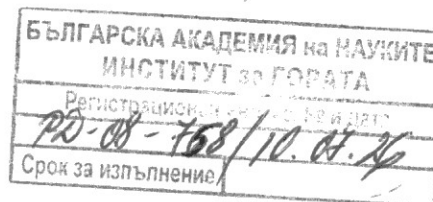


STATEMENT



on the dissertation for the educational and scientific degree of 'Doctor' in the field of higher education
6. Agrarian Sciences and Veterinary Medicine, professional field 6.5. Forestry, scientific specialty 'Forest Reclamation, Forest Protection and Special Uses in Forests'

Author of the dissertation: Assistant Professor Veselin Georgiev Ivanov, Forest Research Institute - Bulgarian Academy of Sciences

Topic of the dissertation: Healthy status of woody vegetation in field protection forest belts in Northeastern Bulgaria and measures for improvement

Member of the scientific jury: Professor Dr. Margarita Ilieva Georgieva, Forest Research Institute - Bulgarian Academy of Sciences, appointed as a member of the scientific jury by Order No. RD-15-248 of 13.05.2026

1. Brief presentation of the doctoral student.

Part-time doctoral student, Assistant Professor Veselin Georgiev Ivanov was born on 01.06.1987 in the city of Dobrich. In 2013, he obtained the educational and qualification degree 'Master' in the speciality 'Forestry' with a specialisation in 'Forest Management and Forestry Economics' at the University of Forestry - Sofia. During the period 2013-2024, mag. V. Ivanov worked as a forester in the State Forest Enterprise of Dobrich and as the head of a forestry section in the State Forestry Administration of Balchik. From 01.07.2024, he holds the academic position of 'Assistant' in the section 'Forest Entomology, Phytopathology and Game Fauna' at the Institute of Forestry at the Bulgarian Academy of Sciences (IG-BAS), where he is studying as a part-time doctoral student in the scientific speciality 'Forest Reclamation, Forest Protection and Special Uses in Forests' (2023-2026). His areas of scientific interest include forest entomology, forest phytopathology, biological control, monitoring of the health of forest and urban ecosystems, biodiversity conservation, etc. During his studies, doctoral student V. Ivanov met and exceeded the minimum requirements for the implementation of the mandatory educational and scientific program of the Centre for Doctoral Training at the Bulgarian Academy of Sciences, achieving 1938 credit points out of 250 required. Throughout the years of study, Assistant Professor V. Ivanov presented results from his dissertation work at scientific seminars organised by the Institute of Forestry and Plant Protection of the Bulgarian Academy of Sciences and participated in national and international scientific conferences in Bulgaria.

2. General characteristics of the dissertation – number of pages and structure.

The dissertation includes 147 pages, with 80 figures and 20 tables. The list of cited literature includes 142 titles, of which 51 are in Cyrillic and 91 in Latin. The literature review presents extensive scientific information on the technologies and diversity of tree species used to create field-protective forest belts in Bulgaria and abroad. A physical and geographical characteristic of the study area is presented with information on 190 field-protective forest belts on the territory of three state forestry and hunting farms. Methodological approaches include the application of traditional and remote methods for monitoring the health of woody vegetation, as well as a specially developed mobile application for the study to collect data on certain indicators. A new integrated methodological approach for assessing the structural and functional characteristics of the belts and their health status has been successfully implemented. The most extensive

section is the results section, which includes significant new scientific data, supported by graphs and colour photographs, that serve as a basis for analysis and comparison of the results obtained.

3. Relevance of the problem.

The developed dissertation presents a significant scientific study on a current problem related to the field-protective forest belts in Southern Dobrudzha, observed since 2020, and expressed in a strong deterioration in the health condition initially of ash species (*Fraxinus* spp.), expressed in processes of dry rot, premature leaf fall and drying of entire trees, but subsequently these processes also cover other tree species of the genus *Quercus*, *Acer*, *Tilia*, etc.

In recent years, intensive disruption of the belts and a loss of their functionality have been observed. The study of the causes of deterioration in the health condition of the field-protective forest belts is an extremely important topic that has engaged national forestry departments and scientific organisations in recent years. The study has not only theoretical but also applied significance, including information on the potential to improve the condition of the field-protective forest belts by using tree species resistant to drought, insect pests, and fungal pathogens.

4. Literary awareness.

The presented list of literary sources includes 142 titles, of which 51 are in Cyrillic and 91 in Latin. In part of the literary review, the doctoral student makes an extensive review of the historical development of the field-protective forest belts since their creation not only in Bulgaria, but also in other countries such as Romania, Russia, the USA, Canada, China, etc., as well as an overview of the change in the health status and management of the main tree species included in the field-protective forest belts and their functional role in protecting agricultural areas in Southern Dobrudzha, points out the possibility of applying new interdisciplinary methods for assessing the health status of tree vegetation, which are in accordance with modern concepts and international initiatives for the sustainable development of functional the field-protective forest belts. The analysis of a large number of literary sources has enabled us to justify the lack of up-to-date information on the dissertation topic and to determine the study's goal and objectives.

5. Purpose, tasks and research methods.

The significance and relevance of the problem serve as the basis for formulating the dissertation's purpose and selecting the research methods. The purpose of this dissertation work is to make a comprehensive assessment of the health status of the tree species used for afforestation in the field-protective forest belts, to establish the main factors responsible for the deterioration of their condition, and to develop measures for their improvement. The study included an inventory of the field-protective forest belts system, an assessment of their health status and categorisation by degree of damage, the development of measures to improve their health status, and the selection of tree species for their reconstruction.

New methodological approaches were applied to rapidly collect field data via a mobile application and to comprehensively assess the condition of field the field-protective forest belts in Southern Dobrudzha. An integrated methodological approach has been successfully tested, purposefully developed to assess the structural-functional characteristics and health status of forest the field-protective forest belts, applicable to all belts in Bulgaria, regardless of tree composition, age, or origin. It allows for early identification of the main problems in the field-protective forest belts and their intensity, as well as planning the type and volume of necessary forestry activities in them.

6. Significance of the obtained results, interpretations, illustrativeness and conclusions.

A purposeful and in-depth study was conducted on the complex impact of abiotic and biotic factors on the deterioration of the field-protective forest belts health in Northeastern Bulgaria. Data on the distribution, biology and ecology of the most dangerous insect pests and fungal pathogens responsible for

the degradation of major tree species were analysed. The dissertation work presented here is based on a large amount of collected biological material and is the first purposeful, methodologically justified study of the condition, structural-functional characteristics, and health of the field-protective forest belts. Part of the dissertation work concerns the successful use of the entomopathogenic fungus *Entomophaga maimaiga* in oak the field-protective forest belts as a biological control to limit the spread of the most dangerous pest in deciduous forests – *Lymantria dispar*.

7. Contributions of the dissertation.

The results presented in the dissertation are current and significant, reflecting the doctoral student's achievements. Scientific and applied scientific contributions of a faunal, mycological, ecological and methodological nature have been achieved. The first targeted, in-depth studies in recent years have focused on the general and health status of tree species in the system of field-protective forest belts in Southern Dobrudzha. A complex of fungal pathogens causing tracheomycoses and necrosis in individual tree species has been identified. For the first time in Bulgaria, the parasitic fungi *Stegonsporium pyriforme* and *Massaria macra* have been identified in species of the genus *Acer*, and for the first time in Europe, the red oak has been reported as a host of the fungal pathogen *Biscogniauxia mediteranea*, which led to the almost complete death of the trees. For the first time in the region of Southern Dobrudzha, a strong deterioration in the health of lime forest belts has been registered as a result of the aggressive development of the fungal pathogen *Biscogniauxia cinereolilacina*. Twelve species and subspecies of xylophagous insects from four coleopteran families have been identified. The majority of them are associated with oaks (*Quercus* spp.) and, to a lesser extent, with silver-leaved lime and walnut. The complex of xylophagous insects on oaks has been studied, with representatives of the Buprestidae family prevailing, with two dominant species from the genus *Agilus* – *A. hastulifer* and *A. graminis graminis*. For the first time in Bulgaria, new methodological approaches have been applied to rapidly collect field data through a mobile application and to comprehensively assess the condition of field protection forest belts in Southern Dobrudzha. The application of the methodologies provides fundamental information on the capacity of the forest belts to fully fulfil their protective functions.

8. Critical remarks and questions.

I have no critical remarks and questions to the doctoral student. All recommendations indicated during the approval process have been correctly reflected by the doctoral student in the original current version of the dissertation.

9. Assessment of the quality of scientific publications.

The main results of the dissertation, related to the establishment of the main biotic factors responsible for the deterioration of the health of the field-protective forest belts in Northeastern Bulgaria, and with new faunal data, have been published in two scientific articles, one of which is in a journal with an Impact Factor (Biodiversity Data Journal), and one in the journal Forest Science (Web of Science), as well as one report in the Proceedings of the 34th International Scientific Conference 'Management and Quality - Ecology and Management of Forest Resources'. In one publication, doctoral student V. Ivanov is an independent author, and in two he is the first author. The achieved results of the conducted research, participation in projects related to the topic of the developed dissertation, the presented publications and participation in scientific forums show that the training of Assist. Prof. Veselin Ivanov has played its role in building him as a scientist who is able to fully plan and independently conduct quality scientific research.

10. Personal contribution of the doctoral student.

In developing his dissertation, doctoral student V. Ivanov achieved original scientific and applied scientific contributions and successfully participated in the adoption of methodological solutions that correspond to the scientific specialty in which the study was developed. Particularly valuable are the results related to the identified main biotic causers responsible for the deterioration of the health and drying of the main tree species in the field-protective forest belts in Southern Dobrudzha, presentation of new faunal data on insect species in the studied area. Three new to science and sixteen new to Bulgaria trophic associations between xylophagous insects and tree species were established, as well as new species for the Bulgarian mycota, including representatives of the class Ascomycota, which requires good theoretical and methodological preparation.

During the years of training, doctoral student Veselin Ivanov stood out as a highly motivated and ambitious young scientist, revealing scientific interests in the field of forest entomology and phytopathology. The qualities he possesses - hard work, perseverance, consistency, precision and responsibility for the conducted scientific research, are the basis for the significant results achieved.

CONCLUSION:

The dissertation of part-time doctoral student Assist. Prof. Veselin Georgiev Ivanov is an original scientific work, dedicated to a current topic, related to the study of the reasons that led to the deterioration of the health of the main tree species used to create field protection forest belts in Northeastern Bulgaria, as well as the study of the bioecological characteristics, distribution and degree of harmfulness of the most dangerous insect pests and fungal pathogens, highly multiplied in conditions of physiological weakening of the trees. Based on the various research methods learned and applied by the doctoral student, the properly conducted field studies and analysis of the results, the summaries and conclusions made, I believe that the presented dissertation meets the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations for the conditions and procedure for acquiring scientific degrees and for occupying academic positions at the Forest Research Institute - BAS, which gives me reason to evaluate it **POSITIVELY**.

I would like to propose to the esteemed Scientific Jury to vote positively and award **Assistant Professor Veselin Georgiev Ivanov** the educational and scientific degree 'Doctor' in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.5. Forestry, scientific specialty 'Forest Reclamation, Forest Protection and Special Uses in Forests'.

Date: 10.07.2026

PREPARED THE STATEMENT:

Prof. Dr. Margarita Georgieva