

## OPINION

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on the materials submitted for participation in a competition for the academic position of **Professor** in the field of higher education 6. **Agricultural Sciences and Veterinary Medicine**, professional field 6.5. Forestry, scientific specialty Machinery and Equipment in Forestry, Timber, Woodworking and Furniture Industries' in the discipline 'Forest Transport'

In the competition for a Professor position, announced in the State Gazette, issue 7/24.01.2025 and on the website of the University of Forestry with procedure code FOR-P-0125-155 for the needs of the Faculty of Forestry, Assoc. Prof. Dr. Stanimir Yordanov Stoilov, Faculty of Forestry, Department of Technology and Mechanization in Forestry participates as a candidate.

**The opinion was prepared by** Prof. Dr. Margarita Ilieva Georgieva, professional field 6.5 Forestry, Forest Research Institute - BAS.

### **1. Brief biographical details of the applicant**

Associate Professor Dr. Stanimir Yordanov Stoilov was born in Elin Pelin on 3.2.1964. In 1990 he graduated from the Higher Forestry Institute (University of Forestry - Sofia), where he acquired the educational qualification degree of Mechanical engineer in Forestry Mechanization. In 2006 he successfully defended his dissertation on the topic 'Research of the traction and coupling properties of wheeled tractors for logging' and acquired the educational and scientific degree 'doctor' in the scientific specialty 'Technology, mechanization and automation of forestry and wood harvesting'.

Since 1997, Assoc. Prof. Stoilov has held an academic position at the University of Forestry in Sofia, and since 2010, the candidate has held the academic position of Associate Professor at the University of Forestry, Faculty of Forestry, Department of 'Technologies and Mechanization in Forestry', where he conducts teaching and research activities, participates in the development of curricula, publication of textbooks and teaching aids in the field of traction machines and forest transport, which are in accordance with the curricula of students of the Forestry specialty, as well as for specialists in the field of forest use and mechanization of forestry.

For the period 2016-2024, he held the administrative position of Deputy Dean of the Faculty of Forestry at the University of Forestry. He is a leader and participant in scientific and educational projects, in the organization and conduct of scientific forums. He is a member of the editorial board of scientific journals, of the scientific committee of international scientific conferences.

### **2. Compliance of the submitted documents and materials of the candidate with the required ones according to the Regulations for the Development of the Academic Staff at the University of Forestry.**

The documents and materials submitted by Assoc. Prof. Dr. St. Stoilov for participation in the competition for the academic position of 'Professor' meet the national minimum requirements for holding this position and the requirements specified in the Regulations for the Development



of Academic Staff at the University of Technology in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.5. Forestry.

### **3. Evaluation of the candidate's educational and pedagogical activities involving teaching (work with students and supervising PhD students)**

In the period 2020-2025, the total classroom and extracurricular employment of Assoc. Prof. Dr. St. Stoilov is 2334.8 hours. He develops curricula and conducts classes at the University of Forestry, including lectures, exercises and teaching practices in the following academic disciplines:

- *Forestry Transport and Traction Machines* for acquiring the Bachelor's Degree (full-time and part-time form of study) for students majoring in Forestry;
- *Operation of Forestry Transport Equipment, Technological Design in Logging, Repair and Maintenance of Equipment* for students majoring in Forestry and Economics of Forestry.

He is a scientific advisor to one doctoral student who successfully defended his thesis in 2017. He is the supervisor of 40 successfully defended graduates at the University of Forestry.

### **4. Evaluation of the candidate's scientific, applied and publication activity 4.1. General description of the submitted materials**

The candidate Assoc. Prof. Dr. St. Stoilov participated in the competition with a total of 34 publications, of which: a book based on a dissertation - 1 pc.; studies in a refereed edition - 1 pc.; publications in scientific journals - 18 pcs., publications in collections - 14 pcs., as well as textbooks - 2 pcs. and teaching aids - 2 pcs. A reference for leadership and participation in 5 research projects and 4 educational projects was submitted.

The submitted self-assessment report for compliance of the candidate's scientific production with the minimum national requirements indicates **1898.80** points, accompanied by the relevant evidence, with a minimum required of 550 points.

The distribution of the candidate's points by individual groups of indicators is as follows:

- **Group of indicators A - 50 points** (minimum requirements of 50 points);
- **Indicator Group B** – ten publications as habilitation papers are presented, which bring the candidate **158.2 points** (minimum requirements of 100 points).
- **Indicator Group G – points received 230.60 points** (minimum requirements of 200 points) and 23 scientific papers are presented – articles and studies, referenced and indexed in world-renowned databases with scientific information, scientific publications in refereed editions, as well as articles and reports in non-refereed journals with scientific review or published in edited collective volumes.
- **Indicator Group D – 1135 points** (minimum requirements of 100 points) – 82 positive citations are presented, in scientific journals and series indexed in Web of Science or Scopus, in non-refereed journals with scientific review, in monographs and collective volumes with scientific review.
- **Indicator Group E – 325 points** (minimum requirements of 100 points) - participation in 6 national and international scientific or educational projects, and leader of 3 national projects; 2 university textbooks and 2 university teaching aids have been published.



#### **4.2 Participation in scientific, applied and educational projects**

The candidate Assoc. Prof. Dr. St. Stoilov has participated in 6 scientific research, applied science and educational projects and has led 3 national scientific research projects, as follows:

- E18. Participation in national scientific or educational projects funded by the Scientific Research Fund, NIS at University of Forestry (5 pcs.).
- E19. Participation in an international scientific or educational project - scientific research project funded by the Scientific Research Fund (1 pc.).
- E20. Management of national scientific and educational projects funded by NIS at University of Forestry (3 pcs.).

#### **4.3 Characteristics of published scientific results**

Assoc. Prof. Dr. St. Stoilov has presented ten publications as habilitation papers in prestigious international journals with high ratings such as *Forests*, *Sustainability*, *Small-scale Forestry*, *Forest Systems*, *Journal of Agricultural Engineering*, *Forestry Ideas*, where original results from many years of experimental and comparative research on the productivity of machines for short-distance transport of wood materials are presented - cableways, combined specialized wheeled tractor-harvester, combi-forwarder with built-in single-drum winch, etc., often used when carrying out forced fellings in both coniferous and deciduous plantations, in which abiotic damage has occurred, mainly on steep terrain, difficult to access with ground machinery. The practical possibilities and innovative approaches for the transport development of forest territories and a justified choice of suitable means for short-distance transport are studied.

As an author, Assoc. Prof. Stoilov published two textbooks for students on 'Traction Machines' and 'Forest Transport', as well as one study textbooks – 'Textbooks for Exercises on Traction Machines'.

Out of a total of 34 publications in scientific journals and collections, 15 are in refereed journals and collections in Web of Science or SCOPUS (B4.1-B4.10 and G7.1-7.5), the rest are in non-refereed journals and collections (G8.1-G8.17), as well as one study in a refereed edition (G9.1) and one book based on a dissertation (G6.1).

#### **4.4. Reflection of the candidate's scientific publications in the literature (known citations)**

Assoc. Prof. Dr. St. Stoilov has presented a list with a total of 82 citations, of which, according to the type of citations, they are divided as follows:

- Citations in scientific publications, referenced and indexed in world-renowned databases with scientific information or in monographs and collective volumes – 72 pcs.
- Citations in monographs and collective volumes with scientific review – 1 pc.
- Citations in non-refereed journals with scientific review – 9 pcs.

#### **4.5. Contributions to the candidate's works (scientific, scientific-applied, applied)**

The candidate's contributions are structured thematically in the following three areas: research on the productivity of machines for short-distance transport (cable cars and combined machines) of wooden materials, transport development of forest areas, utilization of wood biomass as energy, research on safety when using machines for short-distance transport, etc.

The most important scientific, scientific-applied and applied contributions achieved are the following:



#### **4.5.1. Scientific contributions**

It has been proven that the effectiveness of the machines used (cable cars and combined machines) for close transport of wood materials when carrying out forced fellings due to abiotic disturbances in coniferous and deciduous plantations is influenced by the type of damage to the trees (B4.1, B4.4, B4.6, D.7.4), by the volume of the course load (B4.1, B4.9), the distance of the laterally attracted load (B4.1, B4.4, B4.8), by the influence of the technological and technical parameters of the machine or equipment and the taxation characteristics of the plantations in which felling is carried out (GD8.1, G8.3, G8.8), etc.

When studying the efficiency of machines for close transport, it has been proven that reducing the distance of lateral attraction using a cableway leads to an increase in the volume of the payload to the maximum capacity of the machine and to an increase in its productivity (B4.1, G7.4). In comparative studies, it has been proven that the efficiency of using machines for close transport of wood materials depends on the slope of the terrain and the type of felling carried out (B4.9, G8.13),

High efficiency has been established when using combined machines in coniferous plantations on large areas with high completeness (B4.2, G.4.2), on cableways used when carrying out valley-gradual felling in coniferous plantations in protected areas (B4.5), as well as on a combined assortment tractor when carrying out felling in deciduous plantations (B4.10).

#### **4.5.2. Scientific and applied contributions**

It has been established that the safety of the machines used for short-distance transport depends on the type of equipment, the experience of the motorists, the type of agents causing damage, etc. (B4.1, B4.3, B4.6 and B4.10).

A methodology has been developed for experimental research on the fuel economy of specialized wheeled tractors for logging (G8.2). Lower combustion indicators of pellets produced from willow (*Salix viminalis*) have been established compared to coniferous pellets (B8.16). The advantages and disadvantages of the various technological schemes for the production of biomass from fast-growing tree species in Bulgaria have been determined (G8.7).

Geographic information systems have been applied in the preparation of a spatial analysis for the transport development of forest territories and in particular of the forest road network in individual forest holdings and in solving practical problems on the forest road network (D8.10). The specific features of the forest road network in the individual territories have been established, which helps to scientifically select appropriate mechanized means of transporting wood depending on the natural production conditions of the terrain (G9.1).

### **5. Evaluation of the personal contribution of the candidate**

In all the submitted materials, the personal contribution of Assoc. Prof. Dr. St. Stoilov is highlighted, his scientific interests are outlined in the field of using technologies and machines for wood extraction in hard-to-reach and steep terrain, research on the productivity of machines and equipment for attracting materials at short distances, application of geographic information systems in transport development of forest territories, research on the features of forest transport in the forest road network, etc. In the materials submitted for the competition out of 34 scientific papers, the candidate is an independent author in 4 of them, and in 14 he is the first author (in total over 50% of the submitted scientific production). In the remaining publications, the author



is in second or next place. Of all the submitted materials, 23 are in English, and the remaining 11 are in Bulgarian.

#### **6. Critical remarks**

The candidate's contributions are structured thematically in separate areas depending on the scientific and applied research conducted. However, I believe that it is necessary to avoid repeating the contributions listed in the habilitation report (*document 9*) again in the report of contributions (*document 10*), and that some of them could be united within the individual groups for their more concise presentation.

#### **7. Personal impressions**

My personal impressions of Assoc. Prof. Dr. Stanimir Stoilov are related to his teaching activities as a respected and recognized specialist both by his colleagues and by foreign specialists, as well as by students studying at the University of Forestry. In his teaching and scientific career, Assoc. Prof. St. Stoilov has emerged as an eroded scientist and lecturer, presenting his knowledge, many years of experience and competencies in the field of forest transport, use of various types of traction machines for logging in forestry, etc.

#### **8. Conclusion**

The presented original scientific and applied scientific contributions in the field of the use of machinery and equipment in forestry and logging, the presented high-quality scientific production and analysis of its significance, the many years of experience in teaching and expert activity of Assoc. Prof. Dr. Stanimir Stoilov give me reason to positively assess the submitted materials for participation in the competition.

**In connection with the above, I propose that Assoc. Prof. Dr. Stanimir Yordanov Stoilov be elected as a 'Professor' in the discipline 'Forest Transport', scientific specialty 'Machinery and Equipment in Forestry, Logging, Woodworking and Furniture Industries' in the professional field 6.5. Forestry.**

Drafted the opinion:

(Prof. Dr. Margarita Georgieva)