OPINION

on the materials submitted for participation in a competition for **„Professor“** in the field 6. Agricultural Sciences and Veterinary Medicine, Professional field 6.5. Forestry, scientific specialty Machines and Technical Equipment for the Forestry, Logging, Woodworking and Furniture Industry in the discipline Forestry Transport

In the competition for Professor, published in the State Gazette issue 7/24.01.2025 and on the site of the University of Forestry with the code FOR-P-0125-155 for the needs of the Department of Technologies and Mechanization in Forestry at the Faculty of Forestry, as a candidate participate Assoc. Prof. Eng. Stanimir Yordanov Stoilov, PhD, Faculty of Forestry, Department of Technologies and Mechanization in Forestry.

Prepared the opinion: Valentinv Atanasov Atanasov, Ph.D., Assoc. Professor Eng. in a Professional Field 6.5. Forestry, scientific specialty Machines and Technical Equipment for the Forestry, Logging, Woodworking and Furniture Industry from University of Forestry

1. Brief biographical data for the candidate

Assoc. Prof. Eng. Stanimir Yordanov Stoilov Ph.D. was born on 03.02.1964 in the town of Elin Pelin. He completed his higher education in 1990, specialty Complex Mechanization and Assembly Lines in Forestry, University of Forestry – Sofia, former Higher Forestry Institute, with which he acquired the "Master's" degree, as well as the qualification of a mechanical engineer in forestry mechanization. Subsequently, he has two specializations – in Auto Tractor Equipment at the Technical University – Sofia, In 2002, and in Use of Modern Multi-Operation Machines for Working on Mountainous Terrains and Utilization of Wood Biomass for Energy Production at the Technical University – Zvolen, Slovakia, in 2009. In 2006, after defending a dissertation on the topic "Research on the Traction-Coupling Properties of Wheeled Logging Tractors" and acquiring the educational and scientific degree "Doctor" in the professional field 6.5. Forestry, scientific specialty "Machines and Technical Equipment for the Forestry, Logging, Woodworking and Furniture Industry ".

In his career development, Stanimir Stoilov was the Head of the Mechanization Department at the State Forestry Administration – Sofia for 7 years. He started working at the University of Forestry – Sofia as an Assistant Professor in 1997. In the period from 2002 to 2005 he was a Senior Assistant Professor, and from 2005 to 2010 he held the academic position of Chief Assistant Professor. He has been an Associate Professor since 2011, and from 2016 to 2024, in his role as Vice Dean for Research at the Faculty of Forestry, he performed coordination and administrative support functions for the faculty.

Assoc. Prof. Dr. Stanimir Stoilov Ph.D. is fluent in English and Russian.

2. Correspondence of the submitted documents and materials of the applicant according to the Rules of the Development of academic staff at the University of Forestry

The documents submitted by the candidate Assoc. Prof. Eng. Stanimir Yordanov Stoilov Ph.D. for participation in the current competition for the academic position of "Professor" fully meet the requirements set out in the Regulations for the Development of the Academic Staff of the University of Forestry, as well as those of the Law on the Development of the Academic Staff of the Republic of Bulgaria.

When reviewing the submitted materials for participation in the competition, it is clearly noticeable that the candidate meets all the requirements, and even convincingly exceeds some of them. For Indicator A, the required points are 50, and the submitted ones are also 50. For the Indicator relating to habilitation work, scientific publications were submitted that correspond to 158.2 points, with a required 100. The required points for Criterion G are 200 points, and 230.6 were submitted. For indicators E and F, 1 135 and 325 points were submitted, respectively, with the minimum required for each of them being 100.

3. Assessment of the candidate's educational and pedagogical activities (work with students and PhD students)

At the time of submitting the documents for participation in the current competition, Assoc. Prof. Eng. Stanimir Yordanov Stoilov Ph.D. has 27 years and 4 months of work experience as a lecturer at the University of Forestry. During this period, the candidate has been the supervisor of 40 successfully defended graduates and 1 Ph.D. student – In 2017.

In the latest update of the study programs for the Bachelor's and Master's degree programs in Forestry, Assoc. Prof. Stoilov is the author and co-author in the preparation of the study programs for the following disciplines in Bachelor's and Master's degree programs – "Forest Transport" and "Traction Machines" (removed from the Program after 2021) and in Master's degree programs – "Operation of Forest Transport Equipment", "Technological Design in Logging", "Repair and Maintenance of Equipment".

The candidate participated in the competition with two independent textbooks – "Forest Transport" (2017, ISBN - 978-954-332-151-3, 235 pp.) and "Traction Machines" (2017, 978-954-332-157-5, 231 pp.), as well as with a second supplemented and revised edition of Traction Machines Exercises Manual (2020, ISBN - 978-954-332-176-6, 134 pp).

When reviewing the reported auditory and non-auditory employment over the last 5 academic years, it is seen that Assoc. Prof. Stoilov meets the requirements of the Forestry University standard for habilitated lecturers, including during the period in which he held the position of Vice Dean for Research at the University of Forestry.

Associate Professor Stoilov is an erudite and respected by students and the academic community lecturer who is dedicated to his work. Considering this, I believe that he fully covers the educational activities necessary for holding the academic position of "Professor".

4. Assessment of candidate's scientific, scientific-applied and publishing activities (General description of the presented materials)

The candidate Assoc. Prof. Eng. Stanimir Yordanov Stoilov Ph.D. participated in the competition with:

- Monographs – 0 number (s);

- Scientific publications in journals, referenced and indexed in world-renowned databases of scientific information, which replace habilitation work – 10 number (s);
- Textbooks – 2 number (s);
- Learning materials – 1 number (s);
- Books – 2 number (s);
- Publications – 23 number (s).
- Projects – 9 numbers (s).

4.1 Participation in scientific, scientific-applied and educational projects

Assoc. Prof. Stanimir Stoilov has participated in 5 national scientific or educational projects, 1 international scientific project. In addition, he is the head of 3 national scientific projects funded by the Research Sector at the University of Forestry.

4.2 Characterization of published scientific results

The scientific results applied for by the candidate in the competition for an academic position can be classified as follows:

By type:

Publications in scientific journals:

- Publications in journals indexed in *Web of Science* and *Scopus* – 12 (10 of them are presented as an alternative to habilitation work – indicator V4 and 2 are presented under indicator G7);
- In foreign refereed – 0;
- In Bulgarian refereed – 6;
- In unrefereed – 0.

Publications in proceedings of scientific forums:

- National – 0;
- International – 14.

By importance:

- In publications indexed in *Web of Science* and *Scopus* with impact factor and impact rank – 12 (10 by indicator B4 and 2 by indicator G7);
- In publications indexed in *Web of Science* and *Scopus* without impact factor and impact rank – 4.

Language of publication:

- In Bulgarian – 11;
- In a foreign language – 23.

Number of co-authors:

- Independent – 4;
- With one co-author – 12;
- With two co-authors – 9;
- With three or more co-authors – 9.

There are no collective publication protocols to represent the individual contributions of each of the authors, so I assume that their contributions are equal.

4.3 Reflection of Candidate's Scientific Publications in Literature (known citations)

The reflection of the scientific publications of the candidate Assoc. Prof. Eng. Stanimir Yordanov Stoilov Ph.D. is presented through:

- Total – 82 citations.

By type of citations:

- In reference journals and proceedings of scientific forums – 72 citations;
- In teaching aids, monographs, dissertations, etc. – 1 citation;
- In non-refereed journals and proceedings of scientific forums – 9 citations.

4.4 Contributions to the candidate's work (scientific, scientific-applied, applied)

The contributions presented by the candidate can be divided into three groups:

I. Research on machines for short-distance transport of wood materials;

II. Research on the development of forest territories;

III. Research in the field of utilization of wood biomass for energy.

The largest volume of the presented contributions belongs to Group I.

Group I

Scientific contributions in this area are related to:

• the influence of tree damage type on short-haul transport in abiotically disturbed forests;

• the productivity and costs of short-haul transport by cableway during forced felling in coniferous stands;

• the operation of a specialized 4x4 cable skidder;

• the efficiency of a serial transport system consisting of a medium-length cableway and a specialized clambunk skidder;

• loading time and productivity depending on the volume of the figures gripped by a crane;

• the efficiency of a specialized 4×4 choker tractor with a hydraulic boom crane;

• analysis of the state of the technology in logging in Bulgaria as of 2019;

• assessment of the efficiency of two combined options for land and river transport of wood;

• research on the productivity of a unit consisting of a multi-operation machine (harvester) and a forwarder in cultivation and regeneration logging;

• the definition of a mathematical solution to the navigation problem of delta-shaped rope systems using odometry methods;

• the use of a combined forwarder in gradual logging, etc.

The scientific and applied contributions relate to:

• research on the efficiency factor, taking into account the slippage at air pressure in the front and rear tires on machines used in forestry;

• ratio of the traction coefficients of the front and rear wheels of tractors used in forestry;

• derivation of the regression equation for cableway productivity;

• hourly cableway productivity when reducing the lateral attraction distance and increasing the payload volume;

• research on the performance of mobile cableways when carrying out group shelterwood cut in deciduous forests falling within the protected areas of the European ecological network "Natura 2000";

• research on the productivity and profitability of local transport with a specialized 4×4 cable skidder;

• research on the hourly productivity (with downtime) of a specialized 4×4 cable skidder;

• determination of the factors that influence the duration of the working cycle of the ropeway (without downtime), operating in a sequential (serial) transport system with a specialized clambunk skidder;

• determination of the factors that influence the productivity (with and without downtime) of the forwarders;

• derivation of mathematical models for the duration of the transport cycle in the short-distance transport of wood materials;

• development of a methodology for the experimental study of the operational indicators of specialized wheeled tractors for short-distance transport in a semi-loaded position in real operating conditions, etc.

The applied contributions in this group relate to:

• analysis of the production of medium-duty ropeways in the Czech Republic, designed specifically for work in cultivation and even selective logging;

• analysis of trends in modern ropeway trolleys;

• recommendation for the use in Bulgaria of processor ropeways (mountain processors), which are suitable for work in plantations located on large slopes and rugged terrain and with a high concentration of logging, including plantations affected by disasters, where the wood must be quickly utilized and limit the adverse impact on the trees remaining after logging;

• analysis of accidents during work;

• recommendations regarding the use of combi-forwarders and easing the workload of operators of gasoline-powered saws.

Group II

Scientific and applied contributions from the second group are related to the establishment of the main indicators of the terrain, the primary and secondary forest road network in forest areas using modern GIS technologies and establishing the benefit of mobile GIS applications for identifying illegal practices in the transport of wood in forest areas. Applied contributions relate to GIS-based applications and to the study of the primary and secondary forest road network in the Central Rhodopes region.

Group III

This group presents only scientific and applied contributions related to:

• the use of wood biomass for energy production in Bulgaria and Slovakia;

• derivation of the basic equation for pressing briquetted wood biomass in screw presses;

• analysis of the state and potential of agricultural lands in Bulgaria for the creation of short-rotation energy plantations of forest tree species poplar, willow and white acacia;

• development of a methodology for experimental research of the calorific value and ash content of industrially and laboratory-produced wicker (*Salix viminalis L.*) pellets.

5. Assessment of the applicant's personal candidate

From the publications submitted for participation in the competition, it is evident that a significant part of them are the work of Assoc. Prof. Stanimir Stoilov. This is also confirmed by the fact that in the majority of them the candidate is the first author. The total number of submitted independent publications is 4.

The fact that the candidate participates in the competition with 12 papers, which are part of journals with Impact factor, and in 7 of them he is the main (first) author, also makes a good impression.

6. Critical remarks

I have no significant critical remarks that would challenge the candidate's scientific, applied scientific and applied contributions. Excluding minor technical errors, I would allow myself to make some recommendations:

- it would be better if the contributions were presented in a more concise form. In terms of their presentation, some of them resemble a listing of conclusions from individual publications;

- the candidate has a successfully defended Ph.D. student under his supervision, but I recommend that he continue to work and pass on his knowledge to more Ph.D. students, especially in his scientific specialty – "Machines and Technical Equipment for the Forestry, Logging, Woodworking and Furniture Industry";

- I recommend that the candidate direct his scientific research activities towards developing a dissertation for the acquisition of the scientific degree "Doctor of Science".

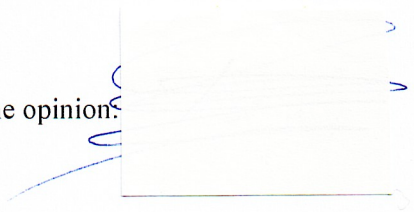
7. Personal impressions

My personal impressions, as well as the materials submitted for participation in the competition, give me reason to believe that the candidate is a well-established university lecturer and scientist in the field of forest transport and related scientific fields. He is a well-prepared and respected lecturer and specialist by students and the academic community. The candidate's participation in international teams also confirms the fact that he is a recognizable scientist abroad.

8. Conclusion

In connection with the above, I propose that Assoc. Prof. Eng. Stanimir Yordanov Stoilov PhD be elected as a „Professor“ in the discipline „Forestry Transport“ in the Professional field 6.5. Forestry, scientific specialty „Machines and Technical Equipment for the Forestry, Logging, Woodworking and Furniture Industry“.

Prepared the opinion:



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