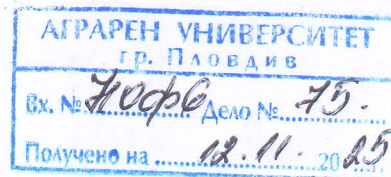


OPINION



by Assoc. Prof. Dr. Mariyan Nedelchev Milev, Department of Statistics and Econometrics, Sofia University "St. Kliment Ohridski", appointed as a member of the scientific jury by Order No. RD-16-1018/08.10.2025 of the Rector of the Agricultural University – Plovdiv

regarding the competition for the academic position of "Professor" in the scientific field: Mathematical Modeling and Application of Mathematics (in Agronomy), announced in State Gazette No. 65 of 08.08.2025, with candidate Assoc. Prof. Dr. Velika Nikolaeva Kuneva from the Department of Mathematics, Informatics and Physics at the Agricultural University – Plovdiv

1. Brief presentation of the candidate.

The sole candidate in the competition is Assoc. Prof. Dr. Velika Nikolaeva Kuneva. She has held the position of Assistant in Mathematics for more than four years (October 2008 – January 2013) and Senior Assistant since February 2014 at the Agricultural University – Plovdiv. She received her PhD degree in Algebra and Number Theory (Professional field: 4.5 Mathematics) from the Faculty of Mathematics and Informatics of Plovdiv University "Paisii Hilendarski", diploma No. 100048 dated 21.01.2013.

In 2016, Dr. Velika Kuneva was habilitated as an Associate Professor in Mathematical Modeling and Application of Mathematics (in Agronomy), announced in State Gazette No. 47 of 21.06.2016. She holds a diploma for the academic position of Associate Professor No. Д53, issued on 25.01.2017 by the Agricultural University – Plovdiv, thus meeting the requirements to apply for the announced position of Professor.

2. General description of scientific output.

In this competition for Professor in the field of Natural Sciences, Mathematics and Informatics (Professional field: 4.5 Mathematics; Speciality: Mathematical Modeling and Application of Mathematics in Agronomy), Assoc. Prof. Dr. Velika Nikolaeva Kuneva participates with a total of 36 works, distributed as follows:

- Publications in scientific journals with impact factor – 10;
- Publications in peer-reviewed and refereed journals – 23;
- 1 textbook and 2 manuals in applied mathematics.

I accept that the personal participation of Assoc. Prof. Dr. Velika Nikolaeva Kuneva in the indicated **35** works is equivalent, noting that **1** is independent (Kuneva, V. Textbook of Higher Mathematics, 2024. Intel Entrans OOD. ISBN:978-619-7703-69-6.), **11** articles have one co-author plus **1** guide, **11** articles have two co-authors and 1 textbook, and the remaining publications have 3 or more co-authors.

As a member of the scientific jury I would like to emphasise that in the professional field 4.5 Mathematics the participation of each coauthor in a scientific publication is considered equivalent. The need for teamwork arises from the scope and scale of the research in the field of mathematical modelling and application of mathematics in agronomy. For the preparation of this opinion all the 33 scientific publications one textbook and two applied mathematics manuals are subject to analysis.

3. Teaching activity

The candidate Velika Nikolaeva Kuneva has also been a teacher of mathematics at the secondary school St Konstantin Cyril the Philosopher which further confirms her pedagogical skills as an educator at the Agricultural University – Plovdiv. She has delivered lectures and exercises in Bulgarian and English in the courses Higher Mathematics I and II Applied Mathematics Mathematical Programming and Modelling of Regional Systems for undergraduate students. Her teaching activity also includes exercises in Algebra I for students in Applied Mathematics Mathematics and Mathematics and Informatics at the Faculty of Mathematics and Informatics of Plovdiv University Paisii Hilendarski. During the last five years associate professor Dr Velika Kuneva has had significant teaching workload including additional responsibilities as faculty coordinator for the Erasmus Plus programme. As mentioned earlier for the students of the Agricultural University – Plovdiv she coauthored a manual in applied mathematics of more than 200 pages including a special section on using MS Excel and the Solver programme for solving linear programming problems showing her deep involvement in teaching activity. She has also developed syllabi for courses Applied Mathematics for undergraduate students both fulltime and parttime included as elective in the curricula of Agronomy Field Crops Plant Biotechnology Breeding and Seed Production and for Mathematical Analysis mandatory for Agricultural Engineering Mathematics and Applied Mathematics in English for international students of the Agricultural University – Plovdiv and Erasmus participants.

4. Research activity

The research and publications of Associate Professor Dr Velika Kuneva are related to mathematical and statistical modelling in agronomy consistent with the scope of the announced competition. Through application of classical statistical methods such as cluster and factor analysis on experimental data results and conclusions have been obtained that can be defined as applied scientific contributions. The following can be highlighted:

- modelling of relations between indicators through regression models and determining the reliability of established effects;
- use of analysis of variance in multifactor experiments;
- mathematical processing of experimental data in the agricultural field;
- applied solution of transport problems using MS Excel Solver. The advantage of algorithmic problems is that they can be solved using suitable software which extends their practical application in data processing and computational operations.
- applied solution of Leontief input output balance model using MS Excel. The algorithmic approach through appropriate software significantly expands the range of practical applications,
- analysis of a kinetic model describing the development of autoimmune diseases. The proposed model is a nonlinear system of differential equations describing the biological activity of interacting populations.

The scientific output of the candidate has been cited **26** times in referenced publications in Bulgaria and abroad including **9** in journals with impact factor She has participated in many international conferences in Bulgaria and abroad including North

Macedonia Portugal and Romania presenting papers and posters related to the competition field Mathematical Modelling and Application of Mathematics in Agronomy.

Over the last five years Associate Professor Dr Velika Kuneva has taken part in two projects:

- Intelligent Crop Production 2021–2024.
- European Green University UniGreen 2023–2026.

5. Remarks and recommendations

I have no critical remarks or recommendations. I note that most of the presented publications are coauthored which is natural given the collective nature of applied research. The significance of her contributions is evident from the citation rate in impact factor journals demonstrating the quality of her research and its recognition by the international scientific community.

6. Conclusion

Based on the analysis of the teaching research and applied scientific activity of the candidate I conclude that Associate Professor Dr Velika Nikolaeva Kuneva meets the requirements of the Academic Staff Development Act its implementing regulations and the Statute of the Agricultural University for holding the academic position of 'professor'. The presented materials in the competition show her as an established researcher with significant applied scientific contributions in agronomy and a capable lecturer in the education of agricultural specialists. All this gives me reason to evaluate her overall activity positively I therefore recommend that the respected Scientific Jury also vote positively and that the Faculty Council of the Faculty of Economics at the Agricultural University – Plovdiv elect Associate Professor Dr Velika Nikolaeva Kuneva as 'professor' in the scientific field Mathematical Modelling and Application of Mathematics in Agronomy professional field 4.5 Mathematics in the area of higher education 4 Natural Sciences Mathematics and Informatics.

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Sofia

Prepared by Assoc Prof.

Dr Mariyan Milev

