



REVIEW

by Prof. Dr. Andrey Ivanov Zahariev,
Faculty of Mathematics and Informatics,
Plovdiv University "Paisii Hilendarskii",
professional field 4.5 Mathematics,

appointed according to Order No. RD 16 - 1018 / 08.10.2025 of the Rector of the
Agricultural University - Plovdiv as a member of the scientific jury
regarding the competition for "professor" in the area of higher education 4. Natural
sciences, Mathematics and Informatics', professional field 4.5 Mathematics, scientific
specialty Mathematical Modeling and Application of Mathematics, announced in the State
Gazette, issue 65/08.08.2025 with a single candidate Assoc. Prof. Dr. Velika Nikolaeva
Kuneva

1. Brief introduction of the candidate.

Assoc. Prof. Dr. Velika Kuneva completed a five-year course of study in the specialty "Mathematics" with specialization "Informatics" at the Faculty of Mathematics and Informatics (FMI) at the Plovdiv University "Paisii Hilendarskii" (PU) in 2001. According to the attached CV, in the period 2001–2002 she worked as a mathematics teacher at the Primary School "St. St. Cyril and Methodius", village of Pyrvenets, and from 2002 to 2008 as a lecturer in mathematics, informatics and information technologies in junior high and high school education. During the period 2006-2012 she was a doctoral student in the doctoral program "Algebra and Number Theory" at the Department of Algebra and Geometry at the FMI at the Plovdiv University "Paisii Hilendarskii". In 2013, she defended her dissertation on the topic "Multiplicative groups of commutative group algebras" and obtained the ONS "doctor". The candidate Velika Kuneva joined the Agricultural University - Plovdiv (AU) as an assistant in 2008, since 2013 she has been a chief assistant, and since 2016 she has held the academic position of "associate professor" in Mathematics 4.5. She is listed in the national register of academic staff as an associate professor with completed scientometric data. Since 2024, Assoc. Prof. Dr. Velika Kuneva has been the Dean of the Faculty of Economics of the Agricultural University - Plovdiv.

2. General description of the submitted materials.

The submitted set of materials and documents for participation in the competition is complete and in accordance with the Regulations for holding academic positions of the Agricultural University - Plovdiv.

For participation in the competition for holding the academic position of "professor", the candidate Assoc. Prof. Dr. Velika Nikolaeva Kuneva has submitted 33 scientific publications, 1 textbook and 2 teaching aids. A complete list of all the candidate's scientific works (including those published in proceedings of conferences, forums and symposia) consisting of 110 scientific publications, 1 textbook and 2 teaching aids is also attached. The

dates of the publications show that the materials submitted for participation in this competition are correctly selected and do not repeat those submitted for acquiring the educational and scientific degree of "doctor", as well as those for holding the academic position of "associate professor", entered in the national register of academic staff. A list of 26 noted citations is also presented, all published after the candidate's habilitation, and therefore not used in previous procedures.

Of the 33 scientific publications submitted by the candidate for participation in the competition:

- all 33 are in English, published in peer-reviewed journals and each of them is indexed in at least one of the leading world-renowned databases with specialized scientific information (Web of Science, Scopus);
- 17 are in journals with an impact factor (total IF=13.35), of which 1 is in Q1; 1 is in Q2 and 15 are in Q4;
- all 33 are indexed in Web of Science;
- 11 are indexed in SCOPUS;
- 11 are with SJR (total SJR=3.199);
- all 33 are co-authored, of which 10 are with 1, 11 are with 2 and 12 are with 3 or more co-authors.

I accept participation in publications with co-authors as equivalent. I note that in mathematics it is customary to arrange authors alphabetically by their last names and only the author responsible for the correspondence is noted, i.e. the concept of 1st, 2nd and nth author has no legal value.

I have no common publications with the candidate, and therefore all submitted materials are accepted for preparation of the review.

3. Main directions of the candidate's research work.

Generally speaking, the candidate's research work is dedicated to mathematical methods for studying and analyzing various processes in agriculture. More precisely, the research is related to applications of mathematical statistics in the analysis and interpretations of mathematical models in agronomy. A number of classical statistical methods have been adapted in the presented publications. The mathematical and statistical processing, analysis and interpretations carried out on their basis, reflected in the presented publications, contribute to solving the following scientific and applied tasks:

A/ Direct application of statistical methods with subsequent analysis of the results from a practical point of view;

- the essence of the results obtained from the mathematical and statistical processing has been determined;
- the influence between specific indicators has been studied through regression models and the reliability of the established impact has been determined;

- dispersion analyses have been conducted, the analysis is carried out as in multifactorial experiments. It is characteristic of the dispersion to be decomposed into components related to the variation in the main gradations;

- cluster analyses were conducted, which allow for logical grouping of individual varieties according to similarity / difference according to certain indicators;

- calculation of Pearson correlation coefficients, including determination of their statistical significance;

B/ Mathematical processing of experimental data using an appropriate statistical software product;

- applied solution of transport problems using MS Excel software (Solver). One of the advantages of algorithmic problems is that they can be solved using appropriate software, which significantly expands their practical application related to data processing and performing numerous computational operations;

- applied solution of Leontief's mathematical-economic balance model using MS Excel software. One of the advantages of algorithmic solution of such problems using appropriate software is the significant expansion of their practical application;

B/ Analysis of a model implemented through a nonlinear system of differential equations describing the development of autoimmune diseases which treats the biological activity of interacting populations over time.

4. Teaching activity.

The candidate has been a lecturer at the Agrarian University since 2008. The candidate's teaching activity is wide-ranging and includes lecturing in the disciplines Higher Mathematics, Higher Mathematics Part I, Higher Mathematics Part II, Applied Mathematics, Mathematical Analysis, Optimization Methods to students of the Bachelor's Degree Programme; in the disciplines Applied Mathematics, Economic Statistics and Quantitative Methods in Economics to students of the Master's Degree Programme; in the discipline Statistical Data Processing to doctoral students from the Agricultural University, as well as conducting classes in the disciplines: Higher Mathematics, Applied Mathematics, Mathematical Programming to foreign students under the Erasmus program.

According to the attached report, the total classroom and extracurricular employment of Assoc. Prof. Dr. Velika Kuneva for the last 5 academic years amounts to 4498 academic hours, which makes about 900 hours of annual workload, which shows her high level and capacity as a lecturer.

Her scientific and teaching activity in the training of young scientists is characterized by the supervision of 5 successfully defended diplomas and 2 successfully defended doctoral candidates. Currently, the candidate is a scientific supervisor of 2 doctoral candidates.

Assoc. Prof. Dr. Velika Kuneva is an independent author of 1 textbook and co-author of 2 manuals - all intended for students at the Agricultural University.

The candidate has participated in the development of new and updating of old curricula for the training of bachelor's and master's degree students from all specialties at the Agricultural University, as well as for foreign students (under the Erasmus program) in the field of mathematics.

5. Scientific research activity.

All 33 submitted publications are on the topic of the competition, namely Mathematical Modeling and Application of Mathematics. This direction implies two features – first, that usually work is done in a team with specialists in different fields and second – that the contributions can be classified as scientific and applied. Therefore, I fully support the self-assessment of the contributions made by Assoc. Prof. Dr. Velika Kuneva, which defines them as the use of mathematical and statistical methods mainly in agriculture. Assoc. Prof. Dr. Velika Kuneva has submitted a report on participation in 1 international and 1 national project.

6. Significance of the results obtained.

The main factor for assessing the significance of the results obtained is the assessment and comparison of the candidate's scientometric indicators, as well as their comparison with the implementation of the minimum national scientometric indicators. From the attached references it is evident that the results of Assoc. Prof. Dr. Velika Kuneva 1409.7 points exceed the minimum national requirements for occupying the academic position of "professor" of 550 points by 256%: In detail:

Indicator A - the candidate has 50 points from a dissertation for the ONS doctor with a minimum requirement of 50 points (overfulfillment is not possible here);

Indicator B - the candidate collects 222 points, obtained from 5 submitted scientific publications, referenced in world-renowned databases (B4 - 222 points) with a minimum requirement of 100 points (i.e. overfulfillment 222%);

Indicator D – the candidate has 738 points, obtained from 28 scientific publications submitted, referenced in world-renowned databases (D7 - 738 points) with a minimum requirement of 200 points (i.e., 369% overachievement);

Indicator D – the candidate has 208 points, obtained from 26 citations submitted in scientific publications referenced in world-renowned databases (D11 - 208 points) with a minimum requirement of 100 points (i.e., 208% overachievement);

Indicator E – the candidate has 186.67 points, collected by the supervision of 2 successfully defended doctoral students (E13 - 100 points), participation in 1 national scientific or educational project (E14 - 10 points), participation in 1 international scientific or educational project (E15 - 20 points), 1 published university textbook (E19 - 40 points) and 2 published university teaching aids (E20 - 16.67 points) with a minimum requirement of 100 points (i.e. 186% overachievement).

In conclusion, the attached analysis shows that the candidate not only meets, but also exceeds by 256% the minimum national requirements for occupying the academic position of "professor" in the professional field 4.5 Mathematics.

A list of 26 citations of her publications selected for the competition is attached, all in journals indexed in Web of Science and/or SCOPUS. A good impression is made by the fact that the citations are from a wide variety of and mostly foreign authors, which is a very good attestation for the scientific and applied scientific contributions of Assoc. Prof. Dr. Velika Kuneva.

I do not find any plagiarism in the works of Assoc. Prof. Dr. Velika Kuneva.

7. Comments and recommendations.

I have no significant critical comments. I recommend that the candidate in the future not limit the field of applications of his scientific developments only to the field of mathematical modeling in agronomy.

8. Conclusion.

Based on the analysis of the candidate's pedagogical, scientific and scientific-applied activities, I believe that Assoc. Prof. Dr. Velika Nikolaeva Kuneva meets the requirements of the ZRASRB, PPZRASRB and the Regulations of the Agrarian University for its application for occupying the academic position of "professor".

The candidate in the competition has presented a sufficient number of scientific works that do not repeat the materials used in previous procedures. The candidate's works contain original scientific-applied contributions that have received international recognition.

The results achieved by the candidate **Assoc. Prof. Dr. Velika Kuneva** in educational and scientific-research activities fully satisfy the minimum national requirements for occupying the academic position of "**professor**".

Therefore, my conclusion for occupying the academic position of "**professor**" announced in the competition by **Assoc. Prof. Dr. Velika Nikolaeva Kuneva** is **POSITIVE**.

I would like to propose to the esteemed Scientific Jury to also vote positively, and the Faculty Council of the Faculty of Economics at the Agricultural University - Plovdiv to elect the candidate **Assoc. Prof. Dr. Velika Nikolaeva Kuneva** as "**professor**" in the field of higher education 4. Natural Sciences, Mathematics and Informatics', professional field 4.5 Mathematics (Mathematical Modeling and Application of Mathematics).

12.11.2025
Plovdiv

This opinion is prepared by:

(Prof. Dr. Andrey Zahariev, PhD)

