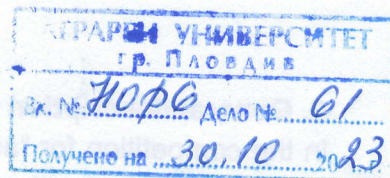


REVIEW



Concerning: Competition for occupation of the academic position "Associate Professor" in: field of higher education 6. *Agricultural sciences and veterinary medicine*; the professional field 6.1. *Crop Production*, scientific specialty *Agrochemistry*, announced in the State Gazette No. 62 of July 21, 2023 by the Agricultural University – Plovdiv, Bulgaria

Candidate for the competition: Chief Assistant Professor Nedyalka Nikolova Yordanova, PhD, from the Agricultural University – Plovdiv

Reviewer: Prof. Svetla Stoyanova Kostadinova, PhD, Agricultural University - Plovdiv, field of higher education 6. *Agricultural sciences and veterinary medicine*; professional field: 6.1 *Crop production*; scientific specialty *Agrochemistry*, appointed as a member of the scientific jury according to order № RD-16-903/25.09.2023 of the Rector of the Agricultural University – Plovdiv

One candidate, Chief Assistant Professor Nedyalka Nikolova Yordanova, PhD, participated in the competition for the academic position of "Associate Professor", announced for the needs of the Department of Agrochemistry and Soil Science at the Agrarian University - Plovdiv. The documents for the competition have been prepared in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for the Implementation of the Law at AU - Plovdiv.

1. General data about the career and thematic development of the candidate.

Nedyalka Nikolova Yordanova was born on August 31, 1979 in the city of Plovdiv. In 2002, she graduated with full honors with a bachelor's degree in "Agronomy", professional qualification "Agronomist". In the same year, 2002, she acquired the additional professional qualification "Consultant in agrarian-legal issues" from the Center for additional training at AU - Plovdiv. In 2003, she obtained a Master's degree in "Plant Biotechnology" from the same university with an excellent 6.00. Since 2007, she has been a full-time doctoral student in the scientific specialty Crop production at the Department of Crop production at AU - Plovdiv. In 2012, she received an educational-scientific degree "doctor" after successfully defending a dissertation on the topic "Comparative study of new varieties of wheat grown independently and in a strip crop with sunflower". In 2007, she won a competition and started working as an assistant in the Department of Agrochemistry and Soil Science. In 2010, she was a senior assistant, and from 2011 to the present, she is the Chief Assistant Professor in the same department. She speaks excellent French and very good English.

2. General description of the scientific production.

In the competition for "associate professor", chief assistant Dr. Nedyalka Nikolova Yordanova participated with a total output of 27 papers, grouped as follows:

- Scientific publications in publications that are referenced and indexed in world-famous databases with scientific information - 10 issues, of which 3 are in journals with an impact factor
- Published book based on a protected dissertation work for awarding the educational and scientific degree "doctor" - 1 issue
- Articles and reports published in scientific publications, referenced and indexed in world-famous databases with scientific information - 7 items
- Scientific publication in non-refereed journals with scientific review or in edited collective volumes - 9 issues

*For the preparation of the review, **27 scientific papers** are subject to analysis*

The personal participation of Ch. Assistant Professor Nedyalka Yordanova, PhD, in the mentioned scientific works in the competition for "associate professor" is as follows: she is an independent author in 6 scientific works (22.2 %); first author in 5 articles (18.5 %); second author is in 8 articles (29.6%); third author and after third author is in 9 publications (29.7 %).

The scientific works of Ch. Assistant Professor Yordanova were published mostly in scientific journals (77.8%) and 5 articles were in proceedings of scientific conferences abroad. Scientific articles have been published in the journals: Scientific Papers Series A. Agronomy (7 issues), Journal of Mountain Agriculture on the Balkans (3 issues), Agronomy Research (2 issues), Bulgarian Journal of Agricultural Science (1 issue), KNOWLEDGE International Journal Scientific papers (2 issues), International Journal of Research in Agriculture and Forestry (1 issue), Bulgarian Journal of Crop Science (2 issues), Scientific works of Agrarian University-Plovdiv (2 issues) and Management & Sustainable Development: society, man, nature (1 number).

The publication activity of the candidate Ch. Assistant Professor Yordanova, PhD, is mainly in English (81.5% of the articles) and the remaining 18.5% of the scientific works are in Bulgarian.

Fulfillment of the requirements for the academic position "Associate Professor"

Chief Assistant Professor Nedyalka Yordanova, PhD, has submitted an Individual Report on the fulfillment of the minimum national requirements for holding the academic position "Associate Professor" in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.1. Crop production in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of the AU for the Implementation of the ZRASRB. According to this report, the applicant has submitted evidence by group of indicators as follows:

Indicator A with minimum. requirements 50 points - A dissertation for ONS

"doctor" is defended, which carries 50 points and compliance - 100%. Publications related to the dissertation - 8 issues (30.82 points), which cover the national minimum scientometric requirements for obtaining the ONS "Doctor". They are not subject to consideration.

Indicator B with min. requirements 100 points - 10 scientific publications are presented in publications that are referenced and indexed in world-renowned databases with scientific information. Three of the presented articles are in journals with an impact factor. The sum of points for this indicator is 132, which exceeds the minimum requirements by 32%.

Indicator Г with minimum requirements of 200 points - The candidate has submitted materials for 209.98 points. The points for this indicator are scored by: Г6 Published book based on a defended dissertation work for awarding the educational and scientific degree "doctor" - 40 points, Г7 Articles and reports published in scientific publications, referenced and indexed in world-famous databases with scientific information – 130 points and Г8 – 39.98 points.

Indicator Д with minimum requirements 50 points - Presented materials for 60 points which are summed up by 3 citations in Scopus and 1 citation in WEB of Science.

The evidentiary material submitted by the candidate Chief Assistant Professor Nedyalka Yordanova, PhD, meets the requirements in Indicator A and exceeds in Indicators B, Г and Д the requirements of the ZRASRB and the Regulations for the implementation of the ZRASRB of the Agricultural University - Plovdiv for participation in a competition for the occupation of an academic position "Associate Professor" in a professional field 6.1. Crop Production.

3. Main directions in the research work of the candidate. Demonstrated skills or talents for conducting research (project management, attracted external funding, etc.).

The presented scientific publications indicate that the research work of Chief Assistant Professor Yordanova is in the field of agrochemistry. The main scientific problems on which the candidate has worked are related to the influence of fertilization on the productivity and quality of plant production in various agricultural crops and with basic agrochemical parameters of the soil fertility.

The scientific production related to optimization of fertilization by crops is: wheat - 6 pcs. (23.1%); barley - 4 pcs. (15.4%); corn - 3 pcs. (11.5%); potatoes - 3 pcs. (11.5%); lavender - 2 pcs. (7.8%), coriander - 1 pc. (3.8 %). The studies related to the analysis of basic agrochemical parameters of soil fertility and their effect on vineyards and perennial crops are reflected in 7 publications (26.9%). The publications are very well shaped, include a thorough literature justification, appropriate mathematical treatment of the results, in-depth analytical part and conclusions.

Ch. Assistant Professor Nedyalka Yordanova, PhD, participated in a total of 17 competitively funded projects. She is a participant in a national project "Support for the development of young scientists and post-doctoral students in the scientific direction "Agricultural Sciences" and related scientific specialties", financed by the European Social Fund 2007-2013 under the Operational Program "Development of Human

Resources" and in three internal research projects on:

1. "Possibilities of the background levels of soil fertility to realize the biological potential of field crops in the conditions of transition from conventional to organic agriculture"
2. "Selection evaluation of the genetic potential for productivity and ecological plasticity of two-row barley lines, in relation to global climate changes".
3. "Changes in reuse of wheat and barley stem reserves under hydro-thermal conditions limiting grain yield"

Ch. Assistant Professor Yordanova is actively involved in research related to the fertilization of the main crops corn, wheat, rapeseed, sunflower and lavender and the novelties offered in this field by leading domestic and foreign companies. This is illustrated by the presented reference for her participation in a total of 12 implementation projects at the Center for Scientific Research at the AU-Plovdiv on the topic:

1. "Study of the influence of mineral fertilization and seeding density on the content and export of nutritional elements in different corn hybrids of the Pioneer company"
2. "Testing of fertilizer products in maize".
3. "Testing of fertilizer products for wheat and rape"
4. "Technology for soil and foliar fertilization of lavender using products of Timak Agro Bulgaria"
5. "Technology for soil and foliar fertilization of lavender using products of Timak Agro Bulgaria"
6. "Determining the effect of organic and organo-mineral fertilizers ITALPOLINA, GUANITO, SONAR on wheat productivity"
7. "Monitoring the impact of Timak Agro products on the development of sunflower in conditions of water stress"
8. "Monitoring the impact of Timak Agro products on the development of corn for grain under conditions of water stress"
9. "Monitoring the effects of the application of new granular fertilizers and biostimulators on the growth and yield of winter wheat grown under field conditions in Bulgaria"
10. "Technology for soil and foliar fertilization of lavender using products of Timak Agro Bulgaria EAD"
11. "Testing schemes for foliar fertilization of corn, using new products of Timak Agro Bulgaria"
12. "Testing schemes for foliar fertilization of sunflower, using new products of Timak Agro Bulgaria"

All this contributes to a very good attestation of the candidate's research activity and her formation as a scientist.

4. Assessment of the pedagogical preparation and activity of the candidate. His role in the training of young scientists.

Currently Chief Assistant Professor Yordanova, PhD, has 16 years and five months of teaching experience as a teacher in the Department of Agrochemistry and

Soil Science at AU - Plovdiv. She actively participates in the training of agronomic personnel by giving lectures, laboratory and practical exercises. During the period 2018 - 2023, she performed a total of 2500 hours (an average of 500 hours for each academic year) in the "Bachelor's" and "Master's" degree students. Ch. Assistant Professor Yordanova conducts practical classes in the disciplines of "Agrochemistry", "Fundamentals of Agrochemistry", "Soil Fertility and Fertilization", "Plant Nutrition and Fertilization", "Mineral and Organic Fertilizers", "Biological Agriculture".

She gave lectures on the compulsory discipline "Agrochemistry" (Bachelor's degree) with students from the specialties of Ecology and Environmental Protection (full-time and part-time), Agronomy of the Tropics and Subtropics, Viticulture and Ornamental Horticulture, and on the optional subject "Soil Fertility and Fertilization" ("Bachelor's degree") with students from Agronomy of the Tropics and Subtropics, Plant Protection and Agronomy. Ch. assistant professor Yordanova, PhD, is actively involved in the training of students from the Faculty of Agronomy, with whom she conducts educational and production practices and participates in committees for written state exams.

The role of Ch. Assistant Professor Nedyalka Yordanova for training of young people is also illustrated by the fact that under her supervision five students from Bachelor's degree have successfully defended their theses, and she is currently the supervisor of two current graduates from the Agronomy specialty.

The analysis of the pedagogical activity and the presented materials from Ch. Assistant Professor Nedyalka Yordanova, PhD, states that she has made a significant contribution to the training of students in the field of crop production and she is respected by her colleagues and students.

5. Significance of the obtained results, proved by citations, publications in prestigious journals, awards, membership in international and national scientific bodies, etc.

Chief Assistant Professor Yordanova, PhD, presented four citations of two of her scientific publications. Three of the citations are in journals with an impact factor, which indicates the interest in the topic and the scientific results of the candidate. Citations are in Journal of Applied Phycology (Q2), The Journal of Animal & Plant Sciences (Q3), Journal of Applied Sciences Research (Q4) and Scientific papers. Series A-Agronomy.

The candidate has participated in two national and 12 international scientific forums that contribute to the popularization of the results of her research activities.

6. Significance of contributions to science and practice. Motivated answer to the question to what extent the candidate has a clearly defined profile of the research work.

I. Scientific contributions.

1. The positive influence of increasing levels of nitrogen fertilization, in balance with phosphorus and potassium fertilization, on the structural elements of yield, productivity and quality of plant production in wheat, barley and corn has been proven.

(Г7 - No. 1; No. 2; No. 4; Г8 - No. 5; No. 8) The exclusion of phosphorus fertilization from the fertilizer combination leads to a decrease in grain yields, while the exclusion of potassium does not adversely affect the productivity of wheat and barley. (Г7 - No. 1; No. 2)

2. Regardless of the rate of fertilization (from N_0 to N_{16}) and the conditions of the year, wheat varieties Avenue and Annapurna realize higher yields, compared to the standard variety Sadovo 1. Nitrogen fertilization increases the export of nitrogen from wheat. The highest nitrogen export was found in the Avenue variety, which is due to the accumulated higher dry matter and the higher yields in this variety. (Г8 - № 8)

3. It was found that the export of nitrogen from maize varies significantly depending on the fertilization rate, while the export of phosphorus and potassium - depending on the genotype and climatic conditions during the year. (B3 - № 7)

4. Nitrogen fertilization has been found to increase the chlorophyll and carotenoid content of potato leaves. Increasing the nitrogen rate (0, 200, 400, 600, 800 and 1000 mgN/kg soil) leads to a decrease in potato dry matter and starch content. Nitrogen fertilization has no effect on the percentage of reducing sugars, with values for all fertilization options being around 0.4%. The content of vitamin C in the tubers is the lowest in the control variant - 11.4 mg/100g. (Г8 - № 3)

5. KCl fertilization has been shown to affect potato quality parameters more strongly than potassium application as K_2SO_4 . Increasing KCl levels reduced the dry matter, starch and vitamin C content of tubers more significantly. These parameters were decreased by 15%, 46%, and 50%, respectively, upon KCl treatment. (B3 - № 1)

II. Scientific and applied contributions.

1. It was established that the inclusion of nitrogen nutrition (8 kg N/da) in wheat agrotechnics leads to a proven increase in crop yields, on average by 40-80 kg/da, and when fertilizing with 16 kg N/da, yields increase by about 200-225 kg/da. The introduction of fertilizer rates above 16 kg N/da for wheat is economically unjustified, because it does not lead to a significant increase in the yield and quality of the grain. (Г6 - № 1; Г8 - № 5)

2. It has been proven that the highest grain yields for wheat (variety Avenue, Annapurna, Airbus and Sadovo 1) are realized when fertilizing with 16 kg N/da. The inclusion of nitrogen fertilization (N_8) in the technology of growing wheat leads to an increase in yields by about 100 kg/da, compared to the unfertilized variant, while with fertilization with N_{16} the productivity of the tested varieties increases by about 300 kg/da. (Г8 - № 8)

3. It has been proven that the greatest increase in grain yields of wheat variety Prelom occurs with moderate nitrogen fertilization with 12 kg N/da against the background of 7.5 kg/da phosphorus and 5 kg/da potassium. (Г7 - № 1)

4. It was established that barley realizes a higher yield at fertilizer rate N_6 , compared to the non-fertilized version, in the range of 130-140 kg/da and 220-250 kg/da, respectively, at fertilization levels N_9 and N_{12} . (Г7 - № 4)

5. It was established that the application of nitrogen fertilization (NH_4NO_3) to corn, in a scheme of 1/3 - pre-sowing, 1/3 - 5th leaf and 1/3 - at the beginning of

sweeping, significantly increases the weight of the cob, the mass, the number of the grains on the cob and the yields which increase by approximately 40-80 t/ha. (B 3 - № 4)

6. Increasing the level of nitrogen from 0 to 120 kg ha⁻¹ positively affects the yield of essential oil in coriander grown in the region of South-Eastern Bulgaria. The highest yield of the crop, as well as the highest content of essential oil, was found after fertilization with 120 kg N ha⁻¹. (B3 - No. 10)

7. Increasing nitrogen levels (0, 200, 400, 600, 800 and 1000 mg N/kg soil) have been shown to decrease potato yields, with the highest rate completely suppressing tuber formation. (Г8 - № 3)

8. It was established that foliar fertilization (Fertileader Gold – 3 l/ha; Fertiactyl Trium + Fertileader Vital – 1.5 + 1.5 l/ha; Fertileader Viti – 3 l/ha; Fertileader Vital – 3 l/ha) leads to a significant increase of the number of flowering stems in lavender. The application of Fertileader Gold and FT+Fvital has been proven to increase crop productivity by 6.1% and 3.7%, respectively. (B3 - № 9)

9. It has been proven that the foliar fertilization of lavender, variety Jubilee, with the products Fertileader Gold – 3 l/ha, Fertiactyl Trium + Fertileader Vital – 1.5 + 1.5 l/ha and Fertileader Viti – 3 l/ha, regardless of the year of cultivation, leads to a significant increase in the yield of essential oil, while fertilization with Fertileader Vital - 3 l/ha and Fertileader Alpha (FA) - 3 l/ha leads to a decrease in the amount of oil. The highest values of the indicator were reported for the variant fertilized with Fertileader Gold - 184.1 kg/ha, which exceeds the standard by 15.8%. (B3 - No. 9)

7. Critical remarks and recommendations.

To the scientific production presented by the candidate Chief Assistant Professor PhD Nedyalka Yordanova, I have no significant comments.

I recommend to Chief Assistant Professor Yordanova to deepen her future research activities in the field of agrochemistry, fertilization and plant nutrition, to focus her publication activity in scientific journals with an impact factor; to participate as an author or co-author in writing a study guide and textbook; to more widely popularize the results of its scientific developments among agricultural producers.

8. Personal impressions and opinion of the reviewer

I have known Nedyalka Yordanova since 2007 and my personal impressions are completely positive. She is an excellent teacher and works very well with students. She developed herself as an intelligent scientist who knows how to work in a team and is ethical and correct in her relations with her colleagues.

CONCLUSION

Based on the analysis of the pedagogical, scientific and scientific-applied activity of the candidate, I believe that Chief Assistant Professor Nedyalka Nikolova Yordanova, PhD, meets the requirements of ZRASRB and the Regulations for implementation of ZRASRB of the Agricultural University - Plovdiv. The scientific production presented by her and her overall activity indicate that Chief Assistant Professor Nedyalka Yordanova,

PhD, is a very well-prepared lecturer and a proven professional in the field of research.

All this gives me reason to **POSITIVELY** evaluate her overall activity and to propose to the esteemed Scientific Jury to vote positively, and the Faculty Council of the Faculty of Agronomy at the Agricultural University - Plovdiv to choose **Nedyalka Nikolova Yordanova** for the academic position of "**Associate Professor**" in the scientific specialty Agrochemistry.

Date: 19.10.2023

Plovdiv

REVIEWER:



(Prof. Svetla Kostadinova, PhD)