



REVIEW

regarding the competition for "professor" in the scientific specialty Crop production, announced in SG no. 99 of 28.11.2023, with candidate associate professor, Dr. Vanya Atanasova Delibaltova from Agrarian University - Plovdiv, appointed according to Order No. RD-16-145/30.01.2024 of the Rector of Agrarian University - Plovdiv as a member of the scientific jury

Reviewer: Prof. DSc. Todor Simeonov Kertikov, University of Ruse "A. Kanchev", higher education area 6. Agricultural sciences and veterinary medicine; professional direction 6.1. Crop production; the scientific specialty "Crop production". Appointed as a member of the scientific jury by order No. RD-16-145/30.01.2024 by the Rector of the Agricultural University.

1. General information on the career and thematic development of the candidate

Associate Professor, Dr. Vanya Atanasova Delibaltova was born in the town of Elhovo on 16.01.1969. From 1987-1992 she obtained a higher education at the Faculty of Agronomy of the Higher Agricultural Institute - Plovdiv, with the qualification "Master" - "Agro engineer - field grower". It studies fundamental and applied disciplines related to plants. For the period 1994-1998, he worked in a private agricultural college in the city of Plovdiv as a teacher of plant breeding disciplines, teaching methodological units, educational and production practices with students from 9th to 12th grade. From 1998 to 2001, he was a full-time doctoral student in the scientific specialty "Crop production" at the Department of Crop production at AU - Plovdiv. In 2002, he defended a dissertation on the topic "Study of the reaction of cotton varieties grown on soils contaminated with heavy metals" and obtained the educational and scientific degree Doctor - Diploma No.: 27771/18.02.2002 from VAK. In 2002-2011 Assoc. Prof. Delibaltova holds the academic positions of assistant, senior assistant and chief assistant in the Department of Crop production at AU - Plovdiv. Its main activity is related to carrying out exercises and practices with students, teaching graduates, carrying out Polish experiments, publication activity. From 2011 until now, the candidate holds the position of associate professor at the Department of Crop production at the Agricultural University. The thematic and scientific-experimental survey and development of the candidate, covers a wide range of field experiments and publication activity in three main directions, namely: Influence of environmental conditions on quantitative and qualitative indicators in cereal and essential oil crops; Agrobiological survey of genotypes essential oil (lavender and coriander), technical (sunflower and tobacco), grain - wheat and grain - leguminous crops (wheat, triticale, corn and soy); Certain technological aspects in the cultivation of major field crops.

The candidate has good social and communication skills, tolerance, ability to work in a team, skills for organizing and distributing functions and duties, etc. Work with specialized computer programs (3D Landscape Design; SPSS; CropWat 08 (FAO); Biostat, Microsoft, etc.

Now, Assoc. prof. Delibaltova is a member of responsible councils, governing bodies and commissions - seven in number. Participation in Scientific juries for associate professors, doctors and doctors of science. Assoc. prof. Delibaltova has prepared and successfully defended two doctoral students. Good command of written and spoken

English and Russian languages. This provides an excellent opportunity to teach foreign students, as well as to present their scientific results at international forums. Participated in six no. research projects, has 6 participations in national and 30 in international scientific forums.

2. General description of the presented materials

In the competition for "Professor" Assoc. prof. Dr. Vanya Atanasova Delibaltova participated with a total production of 97 papers, grouped as follows:

- Scientific publications on the nomenclature specialty - 97 issues, of which:
 - Publications related to the doctoral dissertation - 6, which are not subject to consideration;
 - Publications for the acquisition of the academic position "associate professor" - 5, which are not subject to consideration;
 - Publications with an impact factor – 7;
 - Publications in peer-reviewed and refereed scientific journals – 27;
 - Publications in conference proceedings – 7;

Associate Professor Delibaltova personal involvement in the specified 41 papers is illustrated by the fact that 2 are independent, in 11 is first, in 13 is second, and in the remaining 15 is the third and subsequent author.

- Textbooks – 2.
- Study guides - 2.

For the preparation of a review, 41 items are subject to analysis.

The publications presented for review do not repeat those for the acquisition of the educational and scientific degree "doctor" and for the occupation of the academic position "associate professor".

3. Main directions of the candidate's research work. Demonstrated research leadership skills or assets (project management, external funding involved, etc.)

The research activity of Associate Professor, Dr. Delibaltova is diverse in subject matter, but it is in the field of plant breeding science. It is mainly related to the study of the influence of environmental conditions on quantitative and qualitative indicators in cereal and essential oil crops; Agrobiological study of different genotypes of essential oil (lavender and coriander), technical (sunflower and tobacco), grain-wheat and grain-legume crops (wheat, triticale, corn and soy); Study of individual technological aspects in the cultivation of major field crops and specifically on the influence of predecessors, fertilization, timing and density of sowing on the elements of productivity, yield and quality indicators in wheat, barley, triticale, maize and coriander; Weed control and their impact on productivity in coriander, wheat and lavender; The influence of periodic water deficit on the content and yield of the main chemical components in soybean and corn; the influence of foliar treatment products on quantitative and qualitative indicators in coriander and lavender; Accumulation rates of Pb, Cu, Zn and Cd in sorghum and their potential for cultivation in heavy metal-contaminated soils, as well as their application for phytoremediation purposes. Over the years of her teaching and scientific activity, Prof. Vanya Delibaltova has participated in a national scientific program "Intelligent Crop production", 2 national educational projects under the OP "Development of Human Resources" and 2 research projects under the SSA. She was the head of an infrastructure project at AU - Plovdiv. This shows that the candidate shows responsibility, commitment and teamwork skills. The contribution of the candidate in the absorption of funds from national programs helping the development of Bulgarian agricultural science, as well as raising the level of education of students from AU - Plovdiv, is also impressive. On the other hand, the applicant's high workload with additional (outside teaching) activities is impressive.

4. Assessment of the candidate's pedagogical preparation and activity. His role in the training of young scientific staff

Assoc.Prof. Dr. Vanya Atanasova Delibaltova has accumulated serious pedagogical experience and knowledge, involving herself purposefully, responsibly and actively in

teaching students at all three educational degrees - "bachelor", "master" and "doctor".

According to the attached certificate from AU - Plovdiv (Exh. No. NOR5 - 36 of 06.12.23), the candidate's study load for the period 2018-2023 is a total of 2558 hours, including non-classroom employment. The workload on average per year is 511 hours, with the required norm of 360 study hours. This fact shows that the department of plant breeding has the necessary hours to ensure the employment of the candidate for the academic position "professor" in the scientific specialty "Plant breeding".

The colleague has 21 years and two months of teaching experience in the "Crop production" department at AU - Plovdiv. During this period, she gave lectures and exercises to full-time and part-time students in the disciplines "Crop production", "Medicinal Aromatic and Flavor Plants", "Cereal and Cereal Leguminous Crops" and "Basics of Crop production". She has taught in the following bachelor's degrees - Agronomy and field grower, Viticulture and horticulture, Agricultural engineering, Ornamental horticulture, Ecology and environmental protection and Plant protection. In the Agrobusiness master's course, she gave lectures and exercises on the discipline "Crop production", and in the master's courses of the Faculty of Agronomy, in the introductory module for DPN, she conducted lectures and exercises on the discipline "Fundamentals of Plant Cultivation". The teaching activity of Assoc. Dr. Vanya Delibaltova is complemented by the fact that under her scientific guidance, 25 graduates have successfully defended their diplomas, 19 of them in OKS Bachelor and 6 in OKS Master.

The candidate has fulfilled the requirements according to the rules of the AU for the implementation of the ŽRASRB and protocol No. 4/16.11.2020 of the AC. Prof. Dr. Vanya Delibaltova was the supervisor of two doctoral students who successfully defended their defense at AU-Plovdiv. She is the independent supervisor of one, and co-supervisor of the second doctoral student.

Assoc. Prof. Vanya Delibaltova has developed a total of 10 study programs, namely: For the discipline 04.08.35.3 "Medicinal, aromatic and flavor plants", included as mandatory for the specialty Agronomy-field grower, form of education - regular; For the discipline 03.05.02.3 "Crop production", included as a mandatory form of education for the specialty Decorative horticulture - regular; For the discipline 02.03.01.3 "Crop production", included as a mandatory form of study for the Agricultural Engineering major - part-time; For the discipline 02.04.19.3 "Crop production", included as a mandatory form of study for the specialty Agroforestry systems and mountain agriculture - regular; For the discipline 01.01.02.3 "Biological crop production", included as a mandatory form of study for the specialty Biological agriculture - part-time; For the discipline 01.01.04.3 "Fundamentals of crop production", included as mandatory for the specialization Digitization and management of plant breeding - part-time; For the discipline 01.02.09.1 "Introduction to crop production", included as an elective for the specialty Agronomy-field grower, form of education - regular; For the discipline 02.03.14.1 "Medicinal, aromatic and flavor plants", included as an optional form of education for the specialty Decorative gardening - regular; For the discipline 03.05.13.1 "Medicinal, aromatic and flavor plants", included as an optional form of study for the agricultural engineering specialty - regular and for the discipline 04.08.12.1 "Medicinal, essential oil and flavor plants", included as elective for Agronomy-Viticulture-Horticulture, form of study - correspondence. Of these, 8 are for studying at the Academy of Fine Arts Bachelor in the compulsory disciplines "Crop production", "Medicinal aromatic and flavor plants" and in the optional disciplines "Introduction to crop production", "Medicinal aromatic and flavor plants" and "Medicinal, essential oil and flavor plants" for students from various specialties and forms of education. She also prepared 2 training programs for the OKS Master in the mandatory disciplines "Biological Crop production" and "Fundamentals of Crop production". Assoc. Prof. Delibaltova is the co-author of two textbooks on "Crop production" and two exercise manuals on "Crop production".

The textbooks, study guides, study programs, lecture courses, teaching aids, tests, etc. developed by the candidate, through which the training of the students in the scientific specialty "Crop production" is ensured, are contributions to the learning process, which is an important part of everyone's activity lecturer. Current state-of-the-art scientific research and development addressing the latest crop growing, harvesting and

storage technologies is included. They are related to the scientific and educational theory and practice in our country.

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

For her participation in the competition, the colleague presents a significant number of scientific publications. They have been published in prestigious Bulgarian and foreign specialized magazines. Scientific materials are grouped as follows:

Articles in peer-reviewed and refereed scientific journals indexed in the world-famous databases Scopus and/or Web of science - 27; 17 issues have been published in quartile editions with impact factor and/or impact rank - indexed in the world-famous databases Scopus and/or Web of science Core Collection. Publications with an impact factor – 7, with a total IF - 8.8; 10 issues have been published in peer-reviewed and refereed scientific journals indexed in Web of science All databases. The candidate has complied with the Regulations of the AU for the implementation of ZRASRB and according to protocol No. 4/16.11.2020 of the AU for the academic position "professor" - The articles in the refereed and indexed journals of the world-famous databases with scientific information should not be more fewer than 5 have an impact factor (IF in Web of science Core Collection) or an impact rank (SJR in Scopus). Assoc. Prof. Vanya Delibaltova presented – 12. Articles in non-refereed peer-reviewed journals or published in edited collective volumes, as well as in conference proceedings – 14. Articles in refereed and indexed editions in world-renowned databases with scientific information - 10 (indicator B4), all published in journals with Quartile and Sjr and/or Impact factor. The total number of evaluation points for this publication category is 135.14 (required 100 points) and exceeds the minimum set as a requirement for holding the academic position "Professor". Publications in refereed and indexed editions in world-renowned databases with scientific information – 17, included in indicator G7, of which 212.5 points were reported. Publications in non-refereed journals with scientific review or published in edited collective volumes – 14 (indicator D8) - 35 points; The total amount of required points from indicator D is 200, and Associate Professor Vanya Delibaltova scores 247.5 points.

The scientific publications of Prof. Dr. Vanya Delibaltova have been published in the following journals: Bulgarian Journal of Agricultural Science – 2, Journal of Agricultural Sciences (Yuzuncu Yil University) – 2, Romanian Agricultural Research – 1, Universal Journal of Agricultural Research – 1, Industrial Crops and Products – 1, European Journal of Horticultural Science – 1, Research Journal of Agricultural Science– 1, Journal of Agricultural Science and Technology– 1, Agronomy Research – 1, Journal of Mountain Agriculture on the Balkans – 5, Scientific works - Agricultural University - Plovdiv – 2, Agricultural sciences (Agrarian sciences), AU – Plovdiv – 6, Scientific Papers Series A. Agronomy – 8 and Journal for Research in Agricultural and Food Science - 2. There are 7 articles published in collections, 6 of them in national scientific conferences with international participation and 1 - in a collection of an international scientific conference.

The scientific value and popularity of the published scientific works, as well as the recognizability of the author among the scientific community, is proven by the Citation Reference of the scientific production submitted by the candidate. The total number of observed citations amounts to 63 (without self-citations). Of these, 50 are in scientific publications, referenced and indexed in world-renowned databases. Of these, 25 are in journals with an impact factor (total IF – 98.2; h-index – 4) and 13 are in non-refereed journals with scientific review. According to this indicator, the required points are 100, Assoc. prof. Dr. Vanya Delibaltova exceeds the minimum by having 815 points.

The candidate participates in a number of university scientific councils and organizations: Member of the Attestation Commission - 2016-2019; Member of the Faculty Council - since 2011; Member of the Academic Council (Scientific Secretary) since 2020; Member of the Management Board at the Center for Scientific Research, Technology Transfer and Intellectual Property Protection since 2020; Member of the committee for checking the compliance of the procedures with the rules for the development of the academic staff from 2020; Coordinator of the commission for verification of scientometric indicators professional direction: 6.1 Crop production from

2020; Chairman of the committee that prepared the "Report - self-assessment for program accreditation of the doctoral program in Plant Breeding" and others. Assoc. Prof. Delibaltova has participated in a number of scientific juries, presenting 15 opinions, including: 12 for the academic position "associate professor", two for the educational and scientific degree "Doctor" and one for the scientific degree "Doctor of Sciences".

6. Significance of contributions to science and practice. A motivated answer to the question how much the candidate in competition has a clearly defined research profile

The contributions formulated and presented by the candidate are based on many years of scientific and research activity. The experiments were conducted methodically correctly, the data were interpreted in good scientific style and processed with modern computer mathematical models. The close integration of the candidate and her developments with related specialists from AU - Plovdiv and other scientific units in the country was demonstrated. Demonstrates the candidate's ability to work successfully and productively in a team with other scientists. The scientific production presented by Assoc. prof. Dr. Delibaltova corresponds to the nomenclature specialty 04.01.14. "Crop production". It is the same with contributions of a scientific-theoretical and scientific-applied nature. I accept the attached statement of contributions. I have taken the liberty of rearranging and re-editing the contributions without ignoring their scientific value.

I. ORIGINAL CONTRIBUTIONS

1. For the first time in the conditions of Northeastern Bulgaria, research was conducted with lavender - Hemus, Jubileena, Druzhiba and Sevtopolis varieties. It has been proven that the highest yield of fresh lavender inflorescences is realized from the Druzhiba variety, the highest percentage of essential oil, yield and yield from the Sevtopolis variety, and the best quality oil from the Hemus variety (7; 9).

2. For the first time in our country, the effectiveness and selectivity of the herbicide Praxim against existing weeds was tested on coriander. The influence of the product on the structural elements, the yield and the quality of the seeds has been proven (6).

3. For the first time in our country, the amounts of accumulation of Pb, Cu, Zn and Cd in the vegetative and reproductive organs of sorghum (technical, sugar, Sudanese and for grain) were studied. The possibilities for their cultivation in soils contaminated with heavy metals have been proven, as well as that they are extremely suitable for the purposes of phytoremediation (40).

II. SCIENTIFIC - THEORETICAL CONTRIBUTIONS

1. Against the background of the interaction of the genotype with the environment, 18 statistical indicators determining the stability of winter wheat varieties were determined and analyzed. The level of grain yield after correction for its stability has been found to be the correct approach for grouping cultivars to objectively target specific environmental conditions (10).

2. In 20 lines and four varieties of common winter wheat, important economic characteristics were established. Based on the cluster analysis, it has been proven that the studied genotypes can be divided into five large cluster groups. Lines located in the most distant parts of the coordinate system can be indicated as a source of strong variation and genetic difference. The dominant influence of environmental factors on grain yield and genotype on plant height has been established (12; 13).

3. Regression equations for triticale varieties are derived, with the help of which the theoretical grain yield and the increase in yield per kilogram of nitrogen can be calculated. The results can be used to prepare a detailed economic analysis and establish economically justified rates of nitrogen fertilization of triticale (31; 22).

4. The influence of different irrigation regimes on the chemical composition of soybean seeds was investigated and it was found that the cancellation of irrigation during the reproductive period significantly reduced the content and yield of crude protein in the seeds, as well as the content of lysine, and significantly increased the content of carbohydrates. Mathematical dependencies useful for science are derived (2).

5. The phenological development of soybean varieties in the conditions of Plovdiv was studied. Genotypic differences in soybean development were found to occur after the onset of bean formation. Year conditions have less of an effect on soybean growing

season than cultivar (36).

III. SCIENTIFIC CONTRIBUTIONS

1. In a comparative study on the productivity of coriander varieties, the following ascending order was established: Alekseevsky 247 < Local small-fruited < Sandra < Moroccan < American tall. The earliest ripening variety is American tall. The most suitable sowing rate for the Sandra variety is 300 ks/m², while for Moroccan - 250 ks/m² (23; 24; 25).

2. In two agro-ecological points in the Plovdiv region, the quantitative and qualitative parameters of tobacco varieties - the Burley standard and the X-1553 hybrids - were established; X-1566 and X-1538. (27).

3. Sunflower hybrids - Condi, Neoma, Adagio, Allego and PR64F50 - have been studied in North-Eastern Bulgaria. It was found that the most suitable for growing under these conditions is the Neoma hybrid, which surpasses the others in terms of seed yield and crude fat content (21). Studies have shown that for the same region, the highest corn grain yield in hybrids Iridium, P8523 and DKC503 was obtained from hybrid Iridium, followed by P8523 (3; 17; 2).

4. A range of herbicides was studied for weed control in a young lavender stand and the applied herbicides were found to show good efficacy against annual broadleaf weeds and poor control of perennials. Applied soil herbicides did not have a negative effect on annual growth of lavender plants (19).

5. In a study of herbicide combinations on mixed weeding in common wheat crops, it was found that the elements of productivity and grain yield of the variety Avenue were the highest when using a tank mixture of Secator + Puma Super, controlling 90% of broadleaf and 100 % of wheat weeds (16).

6. The most suitable and high-yielding common wheat varieties for different agro-ecological regions of Bulgaria have been identified (1; 15; 29; 33; 34; 37).

7. It was established that after various predecessors (sunflower, wheat, sorghum and coriander) for wheat and barley in the conditions of South-Eastern Bulgaria, the most suitable predecessor is coriander, and the most effective after it is the rate of fertilization with N120P80, and after sunflower - with N160P80). In a similar study conducted with triticale in southern Bulgaria, coriander was confirmed as the most suitable predecessor, and after this essential-oil crop it was recommended to fertilize with 120 kg/ha of nitrogen, and after sunflower and barley with 160 kg/ha (20; 28; 30).

8. It has been proven that in coriander varieties, when treated with foliar fertilizers, the yield of seeds and some structural elements increases. In addition, products based on lumbricogenic extract have been found to have a stimulating effect on productivity and are suitable for organic farming. They lead to an increase in essential oil and the main ingredient - linalool, as well as in the quantitative and qualitative indicators of lavender (4; 5; 11; 18).

9. In order to optimize the irrigation regime of the corn in the irrigations tested during different periods of the growing season, it was established that the efficiency of the irrigations in the phases of sweeping and milk maturity is approximately the same (35).

IV. APPLIED CONTRIBUTIONS

1. Cancellation of irrigation in corn does not affect the hectoliter mass, and the implementation of an optimal irrigation regime increases the value of the indicator mass per 1000 grains (38).

2. The irrigation regime practically does not affect ET in the 60-80 cm layer. The 40-60 cm soil layer is important for soybean water supply. This suggests that in soybean cultivation, wetting the soil below 60 cm is ineffective (32).

3. For the conditions of South-Eastern Bulgaria, among the wheat varieties tested, the variety Geya 1 (26) is recommended for cultivation by farmers.

4. In Italian triticale varieties grown for green fodder, the main structural elements of yield and green mass yield depend on the variety and the level of nitrogen fertilization (39).

5. The degree of influence of nitrogen fertilization on quantitative and qualitative indicators of corn hybrids was studied and recommendations were given for a suitable hybrid and nitrogen rate for the climatic conditions of the Plovdiv region (41).

6. During fertilizer trials with coriander, it was found that in the region of Plovdiv, the

most suitable nitrogen rate is 120 kg ha⁻¹, while in the region of Southeast Bulgaria – 80 kg ha⁻¹ N (8; 14; 23; 24).

7. Critical notes and recommendations

I have no comments on the materials offered for my review.

8. Personal impressions and opinion of the reviewer

My personal impressions of Assoc. Prof. Dr. Vanya Delibaltova are completely positive. Possesses a high sense of and skills for working together with other colleagues in situations where communication and teamwork are essential. He shows high ethics, initiative and, above all, correctness towards his colleagues.

CONCLUSION

Based on the analysis of the pedagogical, scientific and scientific-applied activities of the candidate, I believe that Associate Professor, Dr. Vanya Atanasova Delibaltova meets the requirements of the ŽRASRB, PPZRASRB and the Regulations of the Agrarian University for its application. The candidate presents a large volume and in-depth scientific and teaching activity. All scientometric criteria for occupying the academic position "Professor" have been fulfilled. The quality of the teaching and activity is illustrated both by the well-developed curricula and aids, and by the significant number of doctoral and diploma students who have successfully defended under her supervision. The scientific researches were conducted methodically correctly, the data were interpreted in the required scientific style. It shows the close integration with related specialists from AU - Plovdiv and other scientific units in the country. Demonstrates the candidate's ability to work successfully and productively in a team with other scientists.

All this gives me reason to **POSITIVE** evaluate her overall activity.

I take the liberty of proposing to the honorable Scientific Jury to also vote positively, and the Faculty Council of the Faculty of Agronomy at the Agricultural University - Plovdiv to elect Associate Professor, Dr. Vanya Atanasova Delibaltova as "Professor" in the scientific specialty "Crop production".

19.02.2024 г.

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REVIEWER: 

(Prof. Dr.Sci.Todor Kertikov)