

OPINION

on the materials for participation in the competition for occupation of the academic position "Associate Professor", field of higher education 6. Agrarian Sciences and Veterinary Medicine, Professional field 6.1. Plant growing, scientific specialty " Fruit growing ", in the discipline "Fruit growing ", announced by the University of Forestry, SG. 32/03.04.2020, procedure code AGR-AsP-0320-37.

Applicant to the competition is:

1. Chief Assistant Professor Denitsa Dimitrova Serbezova, PhD

Prepared by: Rumen Ignatov Tomov, PhD, Professor in professional field 6.2 Plant protection from the University of Forestry

1. Brief biographical data of the applicant

Chief Assistant Professor Denitsa Serbezova graduated from the Agricultural University, Plovdiv in 2002 and obtained a Bachelor's degree in Viticulture and Horticulture. In 2007 he obtained a scientific and educational degree "Doctor" at the Institute of Agriculture - Kyustendil, Department of Berry Crops, defending a dissertation on "Raspberry breeding - economic and biological evaluation of elites."

She began her career in 2008 as a researcher first degree in the Department of Berry Crops, Kostinbrod. In the period 2008-2010 she was an assistant, and from 2010 until now she is Ch. Assistant at the Faculty of Agronomy of the University of Forestry. She has 11 years and 6 months and 22 days of work experience at the University of Forestry.

During the period 2009-2018 she improved her qualification through participation in 9 courses as follows: On-line information systems; Innovative publishing platforms; Principles of innovative doctoral training; Intellectual property management; Use of modern methods for teaching through ICT; Methodology of academic training; Methodology of research, preparation, participation and project management; Fundamentals of information technology. Word processing systems, spreadsheets, presentations and business graphics; STF Chinese Language and Research Culture Training.

Chief Assistant Professor Denitsa Serbezova has participated in 14 research and educational projects. She is the author of 45 scientific works and 2 teaching aids. The scientific results published in 8 of her articles are reflected in the scientific literature with 16 citations. She is a member of two professional networks. In 2016 she was awarded the **Gold Medal** for good performance for the development: "Technology for integrated production of raspberries" by the Union of Inventors in Bulgaria.

2. Compliance of the submitted documents and materials of the applicant with the required ones in accordance with the Rules for RDAS at the University of forestry (UF).

The submitted documents and materials of Chief Assistant Professor Denitsa Dimitrova Serbezova are in compliance with the requirements of the RDAS Rules of the University of forestry. The submitted materials exceed the minimum required points by groups of indicators for occupation of the academic position "Associate professor" for Professional field (PF) 6.1. Plant growing. Chief Assist. Prof. Denitsa Dimitrova Serbezova.

3. Assessment of the applicant's educational activity

From 2008 until now Ch. Assistant Professor Denitsa Serbezova is a lecturer in the field of fruit growing at the University of Forestry. She is the author and co-author of 12. study curricula and titular 10 disciplines taught to students with a bachelor's degree and a master's degree as follows: (1) for a bachelor's degree - "Fruit" (specialty Agronomy and Plant Protection), "Rare fruit crops", "Shape and ornamental fruit growing" "(Special Agronomy); Master's degree, Perennial crops and horticulture: "Technologies in fruit growing" and "Berry crops", "Production of fruit seedlings", "Urban, suburban and greenhouse horticulture", "Post-harvest technologies in fruit growing", "Selection of fruit species ", " Pomology "; Master's degree Selection of fruit species: "Selection of fruit species" and "Pomology".

Ch. Assistant Professor Denitsa Serbezova is a co-author of two textbooks, which are valuable teaching aids for both students and practitioners "Guide to exercises in fruit growing" and "Handbook of the entrepreneur in perennials. II.G. Berry crops.

She has an active work with students. He is the leader of 5 successfully defended diploma paper of graduates. She has joint participation with students in scientific forums with 3 posters and 3 oral presentations. She has been the head of three training practices.

4. Assessment of the applicant's scientific, applied and publication activities

4.1. Participation in scientific, applied and educational projects

Ch. Assistant Professor Denitsa Serbezova participated in 1 international and 10 national research projects in which she was a member of the research team. The international project is under the EuropeAid program. Seven of the projects are funded by the Agricultural Academy, two by the National Scientific Fund of Bulgaria and one by the Scientific sector of the University of forestry.

In addition, Ch. Assistant Professor Dr. Denitsa Serbezova participated as a representative of the target group in 3 the project for increasing the scientific capacity and transfer of knowledge, funded by the Operational Programs etc.

4.2. Characteristics of published scientific results

Ch. Assistant Professor Denitsa Serbezova participates in the competition with 29 published scientific papers, as follows: Habilitation thesis - monograph - 1; Articles and reports published in scientific journals, referenced and indexed in world-famous databases with scientific information - 12; Articles and reports published in non-peer-reviewed journals with scientific review or published in edited collective volumes - 15; Studia - 1.

The scientific publications are 27 and have been published in 11 scientific journals, three of which are foreign and two proceedings of conference paper of scientific forums. The publications in refereed journals are 12, in a foreign language there are 11.

4.3. Reflection of the applicant's scientific activity in the scientific literature (Citation)

The scientific results of Ch. Assistant Professor Denitsa Serbezova have received a response at home and abroad. A total of 16 citations of 8 of her works are detected, as follows: in refereed journals - 1, in a monograph - 1, in non-peer-reviewed journal - 14.

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

The **scientific contributions** of Ch. Assistant Professor Denitsa Serbezova are indisputable and can be summarized in the following 2 areas: (1) Studies on rootstocks and formations of fruit crops and (2) Study of genetic resources of berry crops.

1. Studies on rootstocks and formations of fruit crops

The scientific results of Ch. Assistant Professor Denitsa Serbezova in this area are published in 7 publications (№№ D7.6, 7.7, 7.11, 7.12, 8.5, 8.10, 8.11). The main contributions are the following: (1) It is confirmed that the rootstocks Maxma 14 and Gisela 5 do not affect the chemical composition of the leaves, fruits and their qualities of cherry varieties, widely implemented in practice; (2) It has been established that the plant and reproductive manifestations and signs of economically and economically important varieties of cherries are better expressed in rootstock Maxma 14, compared to Gisela 5. The most fertile variety is Summit, in which the average weight of the fruit is from 9.2 g to 10.4 g; (3) It has been established that the height of shortening of the stems influences the growth and reproductive manifestations of the cherry trees. As the cutting height decreases, the thickness of the stems and the size of the fruit increase; (4) It has been established that in the case of a cherry crown formed with 5-6 branches, the trees enter fruiting earlier and bear more abundant fruit, compared to a crown formed with 15-18 skeletal branches; (5) It has been established that for the rich soils in our country are suitable the formations for intensive cultivation of apple - slender spindle, cone, vertical axis and saline, and for less productive soils the systems for traditional cultivation, improved floor crown, leader, improved cup and free-growing shrub; (6) It has been established that the formation systems, slender spindle and vertical axis cause stronger growth and form higher yield compared to Solen; (7) It has been shown that the 11 May and Early Black Large cherries varieties can be used as donors for early maturity, by the embryo culture method, the varieties Rusty Belvica and Peresta Belvica, which have very good taste, are suitable as donors in the selection activity for higher density of fruit flesh, and the pear varieties Karamanets and Vodnik, resistant to pear fleas, can also be used as donors in the selection activity.

2. Study of genetic resources of berry crops

The scientific results of Ch. Assistant Professor Denitsa Serbezova in this field have been published in 4 publications (№№ B.3.1, D7.2, D 8.2, D8.3). The main contributions are the following: (1) The degree of manifestation of the basic biological and economic qualities of 145 new raspberry genotypes has been established, of which hybrids (37) and elites (108); (2) In determining the genetic diversity of strawberries and raspberries by molecular methods (SSR and RAPD) a high level of genetic diversity ($GD = 0.777$) has been proven in Bulgarian varieties, compared to European and American; (3) Differentiation of the raspberry hybrids and elites by groups has been made, on the basis of the evaluation criteria, which contributes to updating the methodologies for selection, variety study and competitive variety testing of raspberries; (4) A characteristic and core collection of raspberries has been created, as well as comprehensive information with new and original data on plant genetic resources in berries, which is in line with the European database and provides easy access and better exchange in the scientific space; (5) The intermediate character of inheritance of the traits thickness of the shoots and average mass of the fruits in raspberry, the dominance of their rounded-conical shape and medium red color has been confirmed. The reddish-brown color of the two-year-old shoots, characteristic of the Iskra variety, dominates over the gray-brown color; (6) The most appropriate test for rapid screening for susceptibility of raspberries to *Phytophthora* sp. is by watering the raspberry shoots 15-25 cm high,

obtained in vitro with 100 ml of zoospore suspension and a concentration of 1000 spores per 1 ml; (7) It has been established that the widespread Bulgarian raspberry varieties - Bulgarian Ruby and Shopska Alena are highly sensitive to soil pathogens belonging to *Phytophthora* sp., And the varieties Samodiva and Lyulin can be successfully used as a reference in the selection for resistance; (8) It was found that the most appropriate multifactorial scheme for assessing the genetic resources of raspberries to soil fungal pathogens includes the following parameters: plant age, shoot height, plant propagation method, explant type, inoculum concentration and method of infection.

The research contributions of Ch. Assistant Professor Denitsa Serbezova with **scientific and applied** nature are the recommendations made for practitioners, as follows: (1) It is recommended to grow industrial plantations of economically efficient walnut varieties Izvor 10, Sheynovo and Silistra (D7.4); (2) In case of early harvesting of the fruits in the case of plums, flat and semi-flat crowns (type of freely creeping palmettes) are recommended, and in case of mechanized harvesting - improved storey and semi-flat freely formed crown (G7.8). (3) When growing the apple, use the vertical axis system for the varieties Braeburn and Granny Smith on rootstock M9 (D7.5, D8.7, D8.14). (4) The old apple varieties Buhavitsa, Skrinnyanka and Tetovka to be distributed in our country in production plantations, and Kandile and Yamborka for amateur cultivation (G8.9). (5) It is recommended to expand the production of cherry and plum plantations (G7.8, D7.10, D8.12, D8.13, D8.15). (6) Comprehensive measures and methodological approaches are proposed for the purpose of improving and perfecting the technologies for growing pears and plums (D8.4, D8.8, D8.12).

(7) A collection of berry crops has been created in Bulgaria, which is a basis for improvement, expansion and development of strategic areas in important areas such as molecular cytogenetic and biochemical evaluation of existing selections and development and application of in vitro techniques for conservation and use of collections of berries (D7.1). (8) The collected information and the established parameters of the main characteristics of the berry crops, expressed under the specific conditions, are the basis for a dynamic cultural structure, for improvement and development of the methods and standardization documents (D7.2, D8.3). (9) A database for the course of the phenophases of flowering and ripening of the fruits has been created, which is important for determining the term for carrying out agro-technical and selection measures, as well as the selection of the most suitable habitats for raspberries.

(10) The parameters for the vegetative traits and the determined growth force, which can be used for updating the technology for growing raspberries, have been established. A monograph has been published which includes a complete technology for growing raspberries (B.3.1).

Ch. Assistant Professor Denitsa Serbezova is a co-author of 6 popular brochures, which are valuable aids for practitioners.

5. Assessment of the applicant's personal contribution

The personal participation of Ch. Assistant Professor Denitsa Serbezova in the conducted scientific and applied developments and published materials is indisputable. Six of the publications are stand-alone (№№ C 3.1, D 7.3, 7.8, 7.10, 8.8, 8.15). 6 of the published materials are the first author (№№D 7.6, 7.12, 8.3, 8.5, 8.9, 8.10), 7 are second (№№ D7.7, 7.9, 7.11, 8.1, 8.11, 8.13, 8.14), and at 10 is the third and subsequent author (№№ D7.1, 7.2, 7.4, 7.5, 8.2, 8.4, 8.6, 8.7, 8.12, 10.1). Most of the publications of Ch. Assistant Professor Dr. Denitsa Serbezova are the result of her participation in research projects.

6. Critical notes and recommendations

I have no critical comments on the submissions

7. Personal impressions

Based on my professional contacts with Ch. Assistant Professor Denitsa Serbezova, I would define her as an extremely motivated and purposeful teacher, researcher and expert in the field of fruit growing.

8. Conclusion

I SUGGEST the candidate Ch. Assist. Prof. Denitsa Serbezova, PhD, to occupy the academic position of "Associate Professor" in the discipline "Fruit growing" of Professional field 6.1. Plant growing.

Prepared by:

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