

REVIEW

About: academic position "Associate Professor", Field of Higher Education: 6. Agricultural science and veterinary medicine, Professional Field: 6.1. Plant growing, Scientific Specialty "Soil science", announced by the Agricultural University - Plovdiv in the State Gazette issue 7 from 23.01.2024

Applicant for the competition: Chief Assistant Mladen Pavlov Almaliev PhD, Agricultural University, Plovdiv.

Prepared by: Assoc. Prof. Dr. Rossitsa Stoyanova Ilieva, University of Forestry, Sofia, Field of Higher Education: 6. Agricultural science and veterinary medicine, Professional Field: 6.1. Crop production, Scientific Specialty "Soil science", determined a member of the scientific jury, according to Order № RD 16-407/20.03.2024 of the Rector of the Agricultural University, Plovdiv.

1. General data on the career and thematic development of the applicant

Mladen Pavlov Almaliev was born in 1976, in Plovdiv city. During the period 2004-2008, he was a student at the Agricultural University in Plovdiv, specialty Viticulture - horticulture, graduated with the qualification of Agronomist (Viticulture – horticulture). In 2010 he obtained a master's degree in "Tourism management", Faculty of Economics at the Agricultural University in Plovdiv. In 2014 the applicant was appointed as an assistant and since 2016 to present he is Chief Assistant at the Department of Agrochemistry and Soil Science. In 2014 he obtained the scientific-and-educational degree PhD in the scientific specialty "Agrochemistry". The applicant has experience as a university lecturer in the disciplines "Soil science", "Valuation of lands", "Technologies for the restoration of damaged soils and terrains", "Problem soils and Chemical melioration of acidic and saline soils". He has an excellent command of English language.

2. General description of the materials presented

Chief Assist. Prof. Mladen Pavlov Almaliev PhD participates in the competition for an Associate Professor with a total research output of 46 publications, grouped as follows:
- Scientific publications in the scientific specialty – 46 papers, of which:

- * Publications related to the PhD Thesis – 8 which are not subject to review;
- * Publications in refereed indexed publications in world renowned databases with scientific information – 10 issues (indicator B3). Two of the papers in this group are published in journals with Quartile Q3 (B3-8 - SJR 0.25 and B3-9- SJR 0.29), and one - with Q4 (B3-10, IF- 0.3). The total number of points for the evaluation of that category of publications is 139,5 (100 points required), i.e. exceeding the minimum required for taking the academic position of Associate Professor in the Development of the Academic Staff in the Republic of Bulgaria Act, in the Regulations for Application of the Development of the Academic Staff in the Republic of Bulgaria Act and the Regulations of the Agricultural University.

- * Published book based on a protected dissertation work for awarding the educational and scientific degree "doctor" - 1 issue (indicator G 6 – 40 points).
- * Papers and reports submitted in referenced and indexed issues in the world-famous scientific information databases – 8 issues (indicator G 7 – 125 points).
- * Publications in non-refereed peer-reviewed scientific journals or published in peer-reviewed collective volumes – 19 issues (indicator G 8 – 74,54 points).

The number of points required is 200 (indicator G total) and the applicant achieves 242,54 points.

Papers are published in the following journals:

Scientific papers series A. Agronomy-University of Agronomic Science and Veterinary Medicine of Bucharest Faculty of Agriculture – 9 issues, Agricultural Science and Technology - 3 issues, Scientific work - Agriculture University-Plovdiv – 3 issues, **Bulgarian Journal of Agricultural Science**-1 issue, Agriculture & Forestry - 1 issue, Agronomy Research – 1 брой, International Journal of Research in Agriculture and Forestry -1 issue, Agriculture & Food - 3 issues.

The articles published in Proceedings amount to 15 issues, 7 of them of national scientific conferences with international participation and 8 – in Proceedings of international scientific conferences.

38 scientific publications in the scientific specialty are taken into consideration in preparing the statement.

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

The presented scientific papers show that the research work of Chief Assist. Valcheva is in the field of Soil Science. The main scientific fields in which the candidate has worked are related to:

Studying the **potential of soils** for the creation of high-quality wine varieties of vines, creation and cultivation of perennial crops, berry and medicinal plants. The specific climatic and soil conditions with complex relief features are studied and the limiting factors are indicated. Ameliorative, technical and operational solutions are proposed in the conditions of diverse soil cover and complex relief.

Ameliorative approaches to improve the **quality of soils** - liming of acidic soils and anti-erosion measures for soils on eroded terrains. It has been established that the liming of acidic soils in wine-growing areas should not allow a complete change of the soil-chemical environment, but should be limited to the detoxification of exchangeable aluminum, hydrogen and manganese.

Study of the change in the quantity and composition of **macroelements in the foliage and fruits** of vine crops after application of lime materials. In the conditions of an acidic soil environment, the introduction of hydrated lime as an ameliorant in combination with balanced mineral fertilization leads to an increased intensity of physiological processes in the plant and to an increased intensity of enzyme synthesis.

Study of the effect of some **biostimulants for foliar application** on productivity, composition and essential oil content of lavender. Specific products have been recommended that have resulted in significant increases in essential oil yield.

Ch. Assistant Mladen Pavlov Almaliev, PhD, has presented participation in 11 scientific projects. Of them, 7 are implementing, one scientific-researcher at AU-Plovdiv and 2 at the Faculty of Agriculture at Thrace University - St. Zagora. The candidate also participates in an international project for a Scientific Research Fund.

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

Chief Assist. Prof. Mladen Pavlov Almaliev PhD has 9 years and 4 months of teaching experience, entirely in the Department of Agrochemistry and Soil science at Agricultural University, Plovdiv. During this period, he conducted exercises and lectures to full-time and part-time students from Bachelor and Master degrees. For the past five years (2018-2023), he has lead a total of 2889,45 hours. He gives lectures, practical and laboratory exercises in the following disciplines: Soil Science, Melioration Soil Science, Technologies for Restoration of Problematic Soils and Terrains, Problematic Soils and Chemical Reclamation of Acid and Saline Soils.

The teaching activity is complemented by the fact that under his scientific guidance, 9 diplomants are successfully graduated. The candidate has 6 current graduates.

The analysis of the pedagogical activity and the materials presented by Chief Assistant Almaliev indicate that he makes a significant contribution to the education of students in the field of Soil Science in Agricultural University — Plovdiv.

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

The number of the presented citations are 6 (self-citations are not included). Four of them are in scientific issues, refereed and indexed in world-famous scientific information databases (Scopus and Web of science) and two in non-refereed peer-reviewed scientific journals.

The required number of points for citations is 50 and the applicant has presented materials for 70 points.

The candidate has submitted a list of 6 notable citations to his scientific publications in scientific journals, referenced and indexed in world-famous databases with scientific information or journals with scientific review, which proves interest in the achieved scientific results. The required number of points for citations is 50 and the applicant has presented materials for 70 points.

Chief assist. Almaliev has participated in 18 National and 15 International scientific forums with oral and poster presentations, which has contributed to the promotion of the results of her research in the field of soil science.

Almaliev is an active member of the Bulgarian Society of Humic Substances and the International Society of Humic Substances.

6. Significance of contributions to science and practice. Reasoned answer to the question of whether the candidate has a clearly defined research profile

From the documents and materials submitted for review, it is evident that the candidate for the academic position of "Associate Professor", Chief Assistant Mladen Almaliev has a clearly defined profile of teaching and research work in the field of soil science.

I. ORIGINAL CONTRIBUTIONS

As original contributions I accept:

The approach to research and reclamation of complex erosion-accumulative terrain with varying degrees of suitability for growing vineyards. Since the soil conditions in this case are too undefined, areas with limited suitability are designated as areas requiring a specific ameliorative impact on one or more of the three components of the landscape – topography, hydrology and soils.

The study of the influence of secondary pedogenesis processes on the content and distribution of mobile forms of phosphorus in a complex of Chromic cambisols, formed on silicate materials and located differently in terms of their eluvial-deluvial transfer (soil catenary). It was established that the content of P_2O_5 in the upper layer of the soil does not depend on the location of the soil unit along the catenary, but the subsurface horizon should be considered as diagnostic in terms of its distribution.

The tested effect of micronized limestone as a fast-acting chemical ameliorant to neutralize the harmful acidity in the soil. The high efficiency is due to two reasons: the fine dispersion of the material and the form of Ca^{2+} in it, as $Ca(OH)_2$. It has been established that part of the calcium in the ameliorant is absorbed even before its absorption from the sorption positions in the soil, and that a significant part of this ameliorant has the property to quickly migrate deeper into the soil layers. The latter is important when liming perennials.

II. METHODOLOGICAL CONTRIBUTIONS

In the studies on the suitability of the soils for growing wine vineyards, a principled method has been developed, which covers the aspects of the research work in terrains - the object of different ameliorative intervention. A concept has been developed according to which the reduced productivity and ameliorative deficiencies of some soils in the conditions of a specific landscape can be considered as a specificity of the terroir and not as an ameliorative problem.

A method is proposed to systematize the results of the study of the relief, hydrology and soil cover for the development of a tillage and melioration solution of the vineyard terroir in the conditions of a complex erosion-accumulative landscape.

III. SCIENTIFIC CONTRIBUTIONS

In the conditions of a Polish experiment, the influence of liming with $Ca(OH)_2$ with increasing doses on the content of the main nutritional macroelements - nitrogen, phosphorus and potassium in the grapes of four wine grape varieties - Chardonnay, Sauvignon Blanc, Merlot and Cabernet Sauvignon - was investigated. Liming with low rates leads to a regular and proven increase in the concentration of potassium in the leaf mass. When applying high rates of calcareous material, the potassium content

decreases below the control level. White grapes have been shown to contain more potassium than red grapes, with the highest average amount in Sauvignon Blanc grapes.

It was found that the content of calcium in the composition of the fresh grape mass was the lowest at the highest ameliorative lime rate of 500 kg/da. In the case of magnesium, an increased content has been proven in the limed, compared to the non-limed variants.

An increase in the level of total sugars in grapes has been demonstrated in white wine varieties during liming. The tendency to decrease the content of titratable acids with increasing lime rate is relatively stable

The established tendency that the application of calcium-containing ameliorants increases the degree of heterogeneity of the calcium content in the foliage of the vines, due to the positional inaccessibility of the calcareous materials in the soil. The increased rate of absorption of Ca in the foliage of the vines also leads to an increase in the intensity of magnesium input, regardless of the fact that its level in the soil does not change.

The effect of biostimulants for foliar application on the growth, development and productivity of lavender was studied. It was found that the boron-containing products FG, FT + FVital and FViti resulted in a significant increase in essential oil yield, while the application of the foliar fertilizers FV and FA reduced it.

It has been established that the liming of acidic soils in wine-growing areas should be limited to the detoxification of harmful concentrations of readily exchangeable aluminum, hydrogen and manganese, but a complete change of the soil-chemical environment should not be allowed.

The dynamics of movement of the micronized limestone used as a chemical ameliorant to neutralize the harmful acidity in the conditions of the production experiment was studied. The degree of neutralization of harmful acidity was tracked by profile depth. It has been established that its application achieves a full ameliorative effect in terms of harmful soil acidity, as the effect of liming is manifested already in the first year at a depth of up to 40 cm. When using roughly partial waste lime materials, the ameliorative effect is manifested in the sub-horizons of the third year.

IV. SCIENTIFIC AND APPLIED CONTRIBUTIONS

To the scientific-applied contributions, I refer to all soil-climatic studies made related to the suitability of the land for the cultivation of perennial crops, oil-bearing and berry crops.

7. Critical notes and recommendations

I believe that the mentioned contributions of Dr. Almaliev can be presented in a more general form.

8. Personal impressions of the reviewer

I know the candidate for the academic position Mladen Almaliev and I can express my best impressions. Responsible colleague, creative teacher, successful manager of graduates, with very good communication skills. He enjoys the respect of his colleagues and students.

CONCLUSION

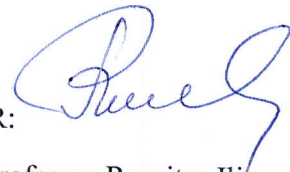
Based on the analysis of the candidate's pedagogical, scientific and scientific-applied activity, I believe that **Chief Assistant Mladen Pavlov Almaliev, PhD** meets the requirements of the **Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of the Agrarian University**. The scientific production presented by her and its overall activity indicate that PhD Valcheva is a very well-trained teacher and a proven professional in the field of soil science.

All this gives me reason to appreciate **positively** her overall activity and to suggest the members of the Scientific Jury to vote positively, and the Faculty Council of the Faculty of Agronomy at the Agricultural University - Plovdiv to **select Chief Assistant Mladen Pavlov Almaliev, PhD, for "Associate Professor" in the scientific specialty "Soil Science"**.

24.04.2024

Sofia

REVIEWER:



(Assoc.Professor Rossitsa Ilieva, PhD)