STATEMENT

on the materials for participation in a competition for the academic position of "professor", field of higher education 6. Agricultural sciences and veterinary medicine, PN 6.1. Plant breeding, scientific specialty "Agrochemistry", in the discipline "Agrochemistry", announced by the Forestry University in SG no. 59/12.7.2024, procedure code AGR-P-0524-132.

Candidate for participation in the competition is:

Associate Professor, Faculty of Sciences Veselin Iliev Kutev

The statement was prepared by: Dr. Ivan Georgiev Manolov, professor of PD Agrochemistry from Agrarian University, Plovdiv

1. Brief biographical details of the applicant

The autobiographical reference provided by Associate Professor Kutev shows that almost all of his professional experience is related to agrochemistry. He completed his higher education at the State Agrarian University "V. V. Dokuchaev", Kharkiv, Ukraine in 1987 with honors studying in a specialty: agronomist, agrochemist, a soil scientist. In the following year, he became a full-time doctoral student at ISSAPP Nikola Pushkarov. His graduation work in Kharkiv and his dissertation in Sofia are related to agrochemical research with the application of the labeled isotope of nitrogen - ^{15}N. In the period 1991 - 1998, he held the position of agrochemist at ISSAPP "Nikola Pushkarov, laboratory for the use of labeled nitrogen ^{15N}. From 1998 to 2004, he was a 1st degree research assistant in the Agrochemistry section. In the period 2004 - 2014, he was an associate professor of Agrochemistry at ISSAPP "Nikola Pushkarov. During a two-year period, he was the head of the Bureau for the Transfer of Technological Solutions in Agriculture at IPAZR "Nikola Pushkarov", which is responsible for advising to farmers regarding the fertilization of agricultural crops. In 2014, he moved to the University of Forestry Sofia as an associate professor of Agrochemistry, where he has been working until now. At the University of Forestry, he was the Head of the Department of Agriculture and Herbology (2016-2019), and from this year he is the Head of the Department of Agronomy at VRID.

In 2013, he defended his dissertation on the topic "Geostatistical approach to the study of the spatial variation of soil indicators for the needs of agrochemical studies and agriculture" and obtained the scientific degree of Doctor of Agricultural Sciences in the scientific specialty of Agrochemistry.

During the period of his professional activity, Prof. Kutev conducted several specializations in renowned scientific organizations at the Center for Nuclear Research, Kadarash and at CEMAGREF, Rennes, France, Institute of Plant Sciences, Swiss Federal Institute of Technology in Zurich, Switzerland, course in application of neutron hygrometry and ^{15}N in fertigation, Ankara, Turkey, and two specializations at Ghent University, Belgium where "Nutrient balance at the farm level" was investigated. As a result of all the specializations, Prof. Kutev increased his qualifications in the field of agrochemistry.

2. Compliance of the candidate's submitted documents and materials with the requirements according to the Regulations for the development of academic staff at the University of Forestry

The report presented by Associate Professor Kutev for self-assessment of the compliance of his scientific production with the minimum national requirements for the academic position of professor fully covers these requirements in all indicators.

3. Assessment of the candidate's educational and teaching activities

Associate Professor Kutev has held the academic position of associate professor at the University of Forestry since 6.10.2014, for a total of 10 years. He develops curricula and teaches undergraduate and graduate students. Academically, Prof. Kutev's teaching activity at the undergraduate level is related to the teaching of three subjects - Agrochemistry, General Plant Breeding, and Plant Breeding. In the materials for the competition, Ass. Prof. Kutev presented four study programs developed by him for undergraduates - the subject "Agrochemistry" for the specialty Agronomy (full-time and part-time), the subject "Agrochemistry" for the specialty Plant Protection (full-time and part-time), the subject "General Plant Breeding" for the specialty Plant Protection (full-time and part-time) and the subject "Plant Breeding" for the specialty Agronomy (full-time and part-time).

There are a total of seven Master's level study programs developed by Assoc. Prof. Kutev: "Agrotechnics and Fertilization", "Precision Crop Production" and "Soil Fertility Management" for the Field Farming specialty, "Organic Residue Management" and "Minimum and Zero Tillage" for the Regenerative Agriculture specialty, "Good Manure Management Practices" for the specialty Sustainable production of fodder crops and "Plant fertilization in precision agriculture" for the specialty Precision Agriculture.

Assoc. Prof. Kutev's teaching activities also include supervision of PhD theses. He was the supervisor of several PhD students: Wissam Hassan Hourani, Asen Nikolov Nikolov, Olga Nikolova Nicheva, and Marina Naskova Stoyanova.

4. Evaluation of the candidate's scientific, applied scientific, and publication activities

4.1. Participation in scientific, scientific-applied, and educational projects

During the period after his appointment to the post of associate professor at the University of Forestry, Associate Professor Kutev participated in the development of eight scientific and educational projects. Two of the scientific projects are national and four are international. Prof. Kutev is the leader of these projects. In addition, he participated in two educational projects. The projects are directly related to the scientific and teaching activities of the professor candidate. The large number of projects in which Prof. Kutev has participated allows him to work with prominent Bulgarian and foreign scientists and to make numerous connections with colleagues from Bulgaria and abroad.

4.2. Characteristics of published scientific results

The results of Assoc. Prof. Kutev's scientific work is summarized in the writing of five books, two of which are independent, and the rest are collective. The two stand-alone books were published in 2023: "Investigation of Nitrogen Mineralization under the Conditions of laboratory, vessel and micro-field Experiments (using ^{15}N)" with a volume of 117 pages and "A Geostatistical Approach to the Study of Spatial Variation of Soil Indicators for the needs of Agrochemical Studies and Agriculture" with a volume of 215 pages. The last book was published based on a dissertation successfully defended in 2013 for the award of the scientific degree "Doctor of Sciences", therefore it will not be reviewed for the current competition. In

2017, co-authored with Lazar Kozelov, Ivan Yanchev, Stephaan de Neve, Caroline D'Haene and Lucien Carlier, a book was published with the title "Investigation of the balance of nutrients at the farm level in Bulgarian agriculture and its use as a means of managing sustainable agriculture" with a volume of 111 pages.

In the fundamental scientific work "Soil organic matter and soil fertility in Bulgaria" published in 2014 by a large collective of authors, Associate Professor Kutev wrote chapter 3.6 "Nitrogen mineralization capacity of soils and its importance for soil fertility assessment" in a volume of 12 pages. In 2019, the book "Technology for Fertigation of Vegetable Crops" was published by a group of authors from the University of Forestry, Sofia and BOKU University in Vienna. This publication is the result of work on a bilateral scientific project between Bulgaria and Austria, funded by the National Found of Science. It serves as a study material for university students and students in agricultural technical schools.

Assoc. Prof. Kutev participated in the creation of the script for the production of a popular science film about the balance of nutritional elements at the farm level in a volume of 12 minutes.

Assoc. Prof. Kutev's publication activity is distinguished by a rather large variety. Apart from the field of Agrochemistry, he has worked in the field of animal husbandry, the magnetosphere and studied the damage in forests by the beetles causing this damage.

4.3. Reflection of the candidate's scientific activity in the literature (citability)

Associate Professor Kutev has indicated 15 citations of his articles only in journals referenced in Scopus and/or Web of Science. These citations substantially cover the minimum number required to attain the title of professor. Citations in other non-refereed articles, books, and dissertations are not indicated.

4.4. Contributions in the works of the candidate/s (scientific, scientific-applied, applied)

The more important contributions of Accoц. Prof. Kutev can be grouped as follows:

Scientific contributions

Four of the publications from group B4 were published in journals with an impact factor, and the remaining six were included in proceedings of conferences with an impact rank. Research in this group focuses on the factors influencing the water balance in the south-central region and its influence on the yield of winter crops. In order to more accurately determine the nitrogen fertilizer rates in different parts of the field, studies were made with a drone and a multispectral camera. The dependence between the unsaturated soil zone and the net gravitational soil flow during the replenishment of the water reserves in the groundwater was established.

New data have been obtained on the pollution of surface and underground waters with nitrates, the main source of which is the nitrogen fertilizers used in agriculture. The possibility of using a digital vegetation index - NDVI to establish a relationship between the nitrogen fertilizers used and the phosphorus background in a growing experiment with zucchini was studied.

A leaching of the organic matter in the depth of the soil profile was found two years after the application of manure in soil with a light mechanical composition. These results differ from the generally accepted opinion about the low mobility of this substance in soil.

Significantly stronger immobilization in the soil of ammonium nitrogen was found when simultaneously introduced NH_4 and NO_3 labeled with ^{15N} compared to nitrate nitrogen.

A permanent monitoring network was established on the vertisol soil type, where a strong correlation of the spatial variability between the content of phosphorus and potassium was established.

The load with residual nitrogen in North-West and Central-North Bulgaria has been established, and the areas with the greatest danger from the washing away of significant amounts of nitrogen have been determined.

Different forms of nitrogen and phosphorus fertilizers have been studied to determine their effectiveness.

The ratio of straw : grain in 100 old and modern varieties of wheat was determined, and a significant difference in this indicator was found between the two main selection centers in Bulgaria - Sadovo and General Toshevo. Fertilization with different rates of N, P, and K affects this ratio. The effectiveness and resistance of old and new wheat varieties to nitrogen fertilization were established.

The precise temporal distribution of nutrients in the root zone and reduction of irrigation water losses under fertigation conditions have been confirmed. The main indicator used to determine the spatial distribution of nutrients in the soil is electrical conductivity.

The trend of reduced amounts of fallen snow and correspondingly reduced water reserves in the soil in recent years and the effect of this on the yield of winter crops have been investigated.

Scientific and applied contributions

The influence of fertigation on some soil indicators, such as changes in pH and the fixation of fertigation-applied phosphorus in the soil, was studied.

Three types of liquid organic fertilizers were tested with the single and double application (in 14 days) - "Extra Force", "Zinovy Korn" and "Zinovy Oil". The obtained results show a positive effect on the yield of the three investigated fertilizers. The fertilizer "Extra Force" had a positive effect on the yield of the test cultures - arugula and lettuce.

Based on a study of the variation of fertilizer rates with the spatial non-uniformity of soil fertility in the case of resin mill and barley and sunflower cultivation, a significant reduction of the nitrogen and potassium rates is recommended in accordance with the actual fertility of the respective area. The rate of phosphorus fertilization can be reduced by 50% in only 10% of the area.

The available real contents of nitrogen, phosphorus, and potassium in the main soils of Eastern Bulgaria were studied. A strong reduction of available phosphorus in the soils and depletion of potassium reserves was found, which testifies to a decrease in soil fertility. The determination is the values for the content of N, P_2O_5, and K_2O, in the presence of which fertilizing with the corresponding fertilizers can be avoided.

The effect of the application of organic liquid fertilizers and preparations "Eko Prop", "Biostar Top", StimAK, "Azary" and "Ermey" on lettuce (Lactuca sativa var. Romana) was evaluated.

The effect of applying nitrogen and phosphorus fertilizers on the content of chlorophyll "a" and "b" and carotenes in lettuce under the conditions of a Polish experiment was established.

Organic fertilizers based on alfalfa extracts were tested on oats, in which a statistically significant increase in oat yield and height was found.

5. Evaluation of the candidate's personal contribution

Based on the publications (articles, books, and teaching materials) provided by the candidate for professor, I can conclude that Associate Professor Kutev has a great capacity for conducting scientific research. His developed syllabi and doctoral student guides show very good teaching skills. That is why I highly appreciate the development of Associate Professor Veselin Kutev in his research and teaching activities.

6. Critical notes and recommendations

A significant number of the articles included in the materials for the competition are related to solving agrochemical problems in the cultivation of various crops and the use of mineral and organic fertilizers. Quite a few publications are not directly related to agrochemistry. In them, animal husbandry problems (6 issues) and studies of the magnetosphere (three issues) were investigated. In this regard, my recommendation is that Prof. Kutev concentrate on his future scientific activity mainly in the field of agrochemistry.

7. Personal impressions

I have known Associate Professor Kutev since 2005 as a responsible scientist and colleague who can be relied upon. In 2013, I participated in his jury for awarding the scientific degree Doctor of Sciences, where I wrote an opinion. In the following years, I have had several professional meetings where Assoc. Prof. Kutev showed accuracy and precision in the issues we discussed and resolved.

8. Conclusion

The scientific output of Assoc. Prof. Veselin Kutev includes a sufficient number of scientific works and contains original scientific and scientific-applied contributions, some of which have received international recognition. Based on the submitted competition materials, his growth as a researcher in the field of agrochemistry is evident. Based on the analysis of the candidate's pedagogical, scientific, and scientific-applied activities, I believe that Associate Professor Veselin Kutev meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria. In accordance with the above, I suggest the candidate Assoc. prof. VESELIN ILIEV KUTEV to take the academic position of "professor" in the subject "AGROCHEMISTRY" from professional direction 6.1. Plant breeding.

I call upon the members of the esteemed Scientific Jury to vote positively for Associate Professor Veselin Iliev Kutev to take the academic position of "Professor" in the discipline "Agrochemistry".

Prepared the statemer

(prof. Ivan Manolov)

The statement was sent on: 11.10.2024