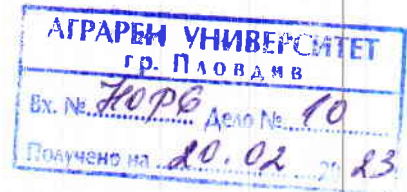


## REVIEW



on a dissertation work for obtaining an educational and scientific degree Doctor" in the field of higher education 6. Agricultural sciences and veterinary medicine, professional direction Plant breeding 6.1 the scientific specialty Reclamation

**Author of the dissertation:** Nadya Stoyanova Hristova, full-time doctoral student at the Department of Reclamation, Land Management and Agrophysics at the Agricultural University of Plovdiv.

**Dissertation topic:** Regulated irrigation regime

### **Reviewer:**

Assoc. Ph.D. Rumyana Krumova Kireva, Region of Higher Education 6 Agricultural Sciences and veterinary medicine, Professional direction 6.1 "Plant breeding", Scientific specialty 04.01.13. "Reclamations" (incl. soil erosion and its control)" from IPAZR "Nikola Pushkarov" - Sofia, appointed as a member of the scientific jury by order No. RD -16.1308/19.12.2022 by the Rector of AU Plovdiv.

### **1. Actuality of the problem.**

The topic of the dissertation work is current in a scientific and scientific-applied sense. The research was conducted for the first time in our country and is aimed at investigating the influence of a regulated irrigation regime with two micro-irrigation techniques (drip and micro-raining) on the productivity of the "Winter Butterhead" lettuce variety with practically applicable results.

In the conditions of water deficit and limited water resources for agriculture, conditioned by climate changes in regions of our country, it is necessary to use modern water-saving technologies, irrigation regimes, organization and management of the irrigation process. The agro-climatic features in most regions of the country require irrigation of agricultural crops in order to compensate for the forming water deficit and to ensure conditions for normal growth of agricultural crops.

### **2. Purpose, tasks, hypotheses and research methods.**

The aim of the research is to optimize the irrigation regime, with drip irrigation and micro-raining, on the productivity of the "Winter Butterhead" salad variety. The goal was achieved through the implementation of 6 tasks related to establishing the parameters of the irrigation regime through the reduction of irrigation norms and its influence on the yield, the values and dynamics of changes in evapotranspiration, the parameters of the relationship "Water - yield", evaluation of the economic efficiency of the applied irrigation regimes for two irrigation techniques (drip and micro-rain) when lettuce growing in open areas.

### **3. Representativeness and presentation of the obtained results.**

The dissertation work is well structured and developed in a volume of 142 pages. It consists of six chapters, literature review, aim and objectives, material and



methods, soil and climatic conditions, results, conclusions. The writing style is good, the thesis is logically and consistently developed, the results are derived and analyzed, and the conclusions and contributions are formulated. The bibliographic reference covers 246 titles with a predominance of foreign literature, of which 29 are in Cyrillic and 197 are in Latin

#### **4. Discussion of the results and used literature.**

The review and analysis of the literary sources (chapter one) is detailed and targeted and shows the good awareness of the doctoral student in the field under consideration.

In chapters three, four and five, which are the main part of the dissertation, the results obtained from the experimental and analytical studies and their analysis are presented. The experimental studies were carried out at the Educational and Experimental Field in the area of the Agricultural University, the city of Plovdiv, with the salad variety "Winter Butterhead". In the process of their implementation, the doctoral learned and applied them as traditional and new methods of research and analysis of the obtained data. The soil and climatic conditions of the crop growing area are described, which are a determining factor for the composition and application of an irrigation regime. The large volume of experimental data for all investigated aspects and variants of irrigation regimes in drip irrigation and micro-irrigation immediately impresses. Based on the results obtained in the field studies, the elements of the irrigation regimes, the amount of irrigation and irrigation rates for optimal irrigation and for irrigation with reduced irrigation rates, total and average day-night evapotranspiration, biophysical coefficients, the parameters of the relationship "Water - yield", evaluation of the economic efficiency of the applied irrigation regimes in both irrigation techniques are determined. All research results obtained by the doctoral student and included in the dissertation work are reliable. And the mastery of a wide range of approaches and methods of research and analysis is definitive proof of the fulfillment of the educational part of the scientific degree "Doctor".

#### **5. Contributions of the dissertation work.**

The conducted research gives the doctoral student the basis to formulate detailed conclusions and scientific-applied contributions, and the dissertation presents only scientific-applied ones, reflected in chapter six. The importance of the candidate's contributions is expressed in enriching the theory and practice in the field of irrigated agriculture vegetable production.

Contributions can be classified as obtaining new and enriching existing knowledge in the considered problematic related to a regulated irrigation regime with the use of two micro-irrigation techniques (drip and micro-raining). I fully accept the proposed contributions formulated by the PhD student.

#### **6. Critical notes and questions.**

I have no critical remarks and recommendations regarding the dissertation.

**Question:** How is the irrigation rate calculated? On page 40, in the formula for determining the amount of the irrigation rate, the element volumetric weight of the soil is missing. Is this a spelling error?

## 7. Published articles and citations.

The publications thematically related to the dissertation are 3 published in the journal Journal of Mountain Agriculture on the Balkans. These publications really show the achievements of the doctoral student and carry the necessary number of points for the ESD "doctor". The abstract objectively reflects the content of the dissertation and is prepared according to generally accepted criteria.

**Conclusion:** Based on the scientific and various research methods applied by the doctoral student, the precisely conducted experiments, the generalizations and conclusions made, I believe that the volume, content and contribution of the presented dissertation fully meets the requirements of the ZRASRB and the Regulations of the Agrarian University - Plovdiv for its application, which gives me reason to rate it **Positively**.

I take the liberty of proposing to the honorable Scientific Jury to also vote positively and award Nadya Stoyanova Hristova the educational and scientific degree "Doctor" in the scientific specialty land reclamation, professional direction Plant Breeding 6.1, field of higher education 6. Agricultural Sciences and Veterinary Medicine.

Date: 02/02/2023  
Sofia

Prepared by

Подписите в този документ са заличени

във връзка с чл.4, т.1 от Регламент (ЕС) 2016/679

(Общ Регламент относно защитата на данни).