OPINION

on a dissertation for obtaining the educational and scientific degree of "**Doctor**" in: the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.3 Animal Husbandry, scientific specialty "Animal Breeding, Biology and Biotechnology of Reproduction"

Author of the dissertation: Zornitsa Boykova Petkova, a part-time student at the Department of "Animal Sciences" at the Agricultural University, Plovdiv.

Topic of the dissertation: "Modern trends in the creation of a high-milk sheep population in Bulgaria and opportunities for using the Pleven Black-headed sheep in the selection process"

Reviewer: Assoc. Prof. Dr. Tanya Stefanova Ivanova from the Institute of Animal Sciences - Kostinbrod (field of higher education 6. Agrarian Sciences and Veterinary Medicine, professional field 6.3 Animal Husbandry, scientific specialty "Sheep and Goat Breeding") appointed as a member of the scientific jury by order No. РД-16-612/14.05.2025 by the Rector of the AU - Plovdiv.

1. Relevance of the topic.
The topic of the dissertation is highly relevant, considering the current trends in sheep breeding in the country. The presented content—including the aim, materials and methods, results, and discussion—exceeds the formal requirements for a doctoral thesis for the acquisition of the educational and scientific degree "Doctor". The literature review demonstrates comprehensive knowledge of the issues related to the development of the dairy direction in sheep breeding in Bulgaria and substantiates the study on the potential use of the Pleven Black-headed sheep for its improvement. A significant number of literary sources have been analyzed critically. Modern analytical methods have been employed, leading to scientific and practical results.

2. Aim, tasks, hypotheses and methods of study.
The aim and tasks are clearly and precisely formulated: based on a phenological and population-genetic analysis of a selectively formed segment of the dairy sheep population in Bulgaria, the study investigates modern trends in the development of dairy sheep farming and the opportunities for including the Pleven Black-headed sheep in the breed-forming process. With this aim, the doctoral candidate describes the current state of the problem and attempts to propose a solution, which creates prerequisites for future studies at a higher level.

3. Visualization and presentation of the received results.
The dissertation is written in a proper scientific style and language. The total volume of the thesis is 185 pages, including: introduction – 2 pages, contents – 1 page, abbreviations – 3 pages, literature review – 26 pages, aim and objectives – 2 pages, materials and methods – 11 pages, results and discussion – 102 pages, summary – 6 pages, conclusions – 2 pages, recommendations – 1 page, references – 26 pages with 302 sources (57 in Cyrillic and 245 in Latin). There is also a list of 4 publications related to the dissertation – 1 page, and a list of contributions – 2 pages. The dissertation is illustrated with 53 tables, 30 figures, and 12 photographs, all of which are well-structured.

4. Discussion on the results and used literature.
A thorough analysis of the literature and the large volume of results have enabled the doctoral candidate, Zornitsa Petkova, to conduct an in-depth discussion. The results are presented and structured very well in tables, figures, and photographic material. The data analysis benefited from the use of proper methodological approaches and statistical processing, as well as a high level of expertise and precision in the work. The presented content is of significant scientific and applied value. The summary of the dissertation results leaves a positive impression. The milk production of purebred sheep was studied, as well as the effects of region, farm, and year of recording. Crossbreeds with East Friesian and Assaf sheep were analyzed for productivity. Hematological blood parameters, the physicochemical and fatty acid composition of the milk, and insemination experiments during the anestrous period were investigated. The detailed analysis shows that high-blood-percentage crosses of Pleven Black-headed sheep with Assaf can be used successfully for year-round intensive milk production.

5. Contributions of the dissertation work.
The conducted studies and analyses have allowed the doctoral candidate, Zornitsa Petkova, to outline 9 original contributions with scientific and applied significance. These derive from the performed experimental work and the resulting conclusions: 6 are scientific, 2 are scientific-applied and applied, and 1 is of a confirmatory nature. I accept all conclusions and contributions. I believe that the studies, conclusions, and recommendations make a significant contribution to science and help determine current trends in the development of the dairy sector in sheep breeding and the opportunities for using the Pleven Black-headed sheep in the selection process.

6. Critical remarks and questions.
None.

7. Published articles and citations.
Based on the dissertation, the doctoral candidate Zornitsa Petkova has published 4 scientific papers, in 3 of which she is the first author, and in the fourth – the third author. The publications are indexed in global databases (WoS and Scopus). The total score from the publications is 45 points, whereas the minimum requirement is 30 points, i.e., the doctoral candidate exceeds the criterion. This justifies giving a high evaluation of her scientific work.

The presented abstract objectively reflects the structure and content of the dissertation.

CONCLUSION:

Based on the variety of research methods applied by the doctoral candidate, the properly conducted experiments, and the well-formulated generalizations and conclusions, I believe that the dissertation fulfills the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) and the Regulations of the Agricultural University for its implementation. This gives me grounds to give a POSITIVE evaluation.

I recommend to the esteemed Scientific Jury to also vote positively and to confer upon Zornitsa Boykova Petkova the educational and scientific degree "Doctor" in the scientific specialty "Animal Breeding, Biology and Biotechnology of Reproduction".

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