OPINION

by Assoc. Prof. Georgi Ivanov Georgiev, Ph.D.

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Appointed as an internal member of the scientific jury for the awarding of the PhD by Order of the Rector of University of Forestry - Sofia No.169/01.04.2024

SUBJECT: Dissertation on "IMPACT OF DIFFERENT HERBS ON BODY PERFORMANCE AND MEAT QUALITY IN AWASSI MALE LAMBS" with author Ph.D student Master of Agricultural Engineering Georges Hanna al Hanna, for the award of the educational and scientific degree "Ph.D.", field of higher education 6. Agricultural sciences and veterinary medicine, professional direction 6.3 Livestock breeding, scientific specialty "Selection of farm animals, biology and biotechnology of reproduction" with scientific supervisors - Prof. Dr. Zapryanka Shindarska - University of Forestry, Sofia and Prof. Dr. Boulos Al Jammal – Lebanese University.

Ph.D. student Georges Hanna al Hanna's dissertation examines a current and significant question in relation to the conversion of nutrients from food into animal products, using the most common farm animals to exploit the local genetic resource, and natural herbaceous plants are recommended as a diet instead of nutritive antibiotics.

The topic of the dissertation work is scientifically relevant and practically necessary and justified regarding the research conducted and the results obtained in a very difficult situation in Lebanon.

The dissertation is constructed according to the requirements for this category of scientific works and is presented in good literary and professional English. The scientific work is printed on 124 typewritten pages and includes acknowledgments - 1 page, abstract - 1 page, sheet of abbreviations, tables and figures - 3 pages, table of contents - 3 pages, introduction - 3 pages, literature reference - 34 pages, aim and objectives 1 page, material and methods - 9 pages, results and discussion - 41 pages, conclusions and recommendations - 3 pages in total, bibliography - 22 pages, publication sheet - 1 page and supplementary appendix - 1 page illustrated with 35 figures and 13 tables, separated and as an appendix at the end of the dissertation. It contains all the main sections typical for this type of scientific work.

The introduction is extensive and complete, and through it the author was able to emphasize the problem and point to the need to carry out this research.

The literature review is comprehensive and laid out in 34 pages, as the dissertation gives enough information from the world scientific research in all the areas covered in the dissertation work. This gives me reason to conclude that his awareness of the issues that are addressed is at a high scientific level. The overview is a theoretical prerequisite for the development of the following sections to be in the right direction and to also expect correct results, adequate analyzes and interpretations at a high scientific level. Of great importance is the emphasis on modern requirements on changing the use of nutritional antibiotics with natural herbal plants.

The aim of the dissertation work is clearly formulated and fully corresponds to the given title. In order to achieve the set goal, three **tasks** have been set, which are correctly directed and formulated in such a way as to evaluate the impact on the fattening effect and meat quality of the lambs of the Awasi breed when using chamomile, sage and thyme. Precisely set tasks point to categorical evidentiary material reflected in the figures and tables used in the dissertation work.

In the **"Materials and methods"** section, 47 animals in three groups are included as material, 20 fed with chamomile, 15 with sage and 12 with thyme, which is enough for biometric processing and outline the statistical reliability of the results and from there their correct scientific interpretation. I have no objections to the **methods** and formulas for measurement and calculations, providing a basis for both accurate processing of primary data and adequate analysis of processed data.

The results are statistically correctly processed and are presented in 13 tables and 35 figures, and the discussion is a natural continuation of the descriptions under the tables and figures, which shows that the dissertation student has acquired an optimal amount of knowledge and skills for research and interpretation of scientific results and case studies. Data analyzes are objective and done adequately and professionally. The data obtained are commented very carefully. I find extremely positive the scientific and scientific - applied potential of Georges Hanna al Hanna, as this section clearly shows what is the basis of the categorical opinion about the educational and scientific merits that he acquired in the course of the development of this work.

I don't find it wrong to combine the results and discussion sections, because the emphasis is so clearly on the originally obtained data compared to those known in the literature.

The obtained experimental results are summarized in correctly and concretely formed five contributions, two of a scientific-applied nature, which are original, one of a scientific-applied nature, two of theoretical and practical importance, and the last one is also original.

I fully support the shaped inputs as they would help in utilizing the local genetic resource in the face of Awasi lambs by using natural herbal plants namely chamomile, sage and thyme. I find it very important to specify the dosages of chamomile - 2%, sage - 3% and thyme - 4%, to be used in practice when feeding lambs for fattening of the Awasi breed to give sufficient growth so that they

The bibliography is very rich, consisting of 252 publications (all in Latin) and corresponding to the citations in the other sections.

3 publications are presented, two of which are in the proceedings of a scientific conference without SJR/IF indexation and one - in a journal that is also referenced with IF indexation. Publications use material and are compatible with the information contained in the dissertation are not nutritional antibiotics used.

As the only author in the journal with IF indexation, and in the other two co-authored with three other participants, the dissertation meets the minimum requirements for the "Ph.D."- by having 35 points, which I fully recognize (4*10 in indicator G8), with the minimum required 30.

The abstract fully corresponds to the dissertation work, where the most important of the achieved results are reflected.

I must note that the Ph.D. student complied with almost all the remarks and constructive criticisms given by the members of the expanded department council during the preliminary discussion, which are reflected in the dissertation work and immeasurably increases its quality.

Opinion on the question of how far the dissertation is the PhD student's own work: The European Plagiarism Detection System query I made gave a 28% and 18% match, but on careful and detailed examination it became clear that this percentage of similarity was actually from different papers, which are around and below 0.5% of each article used with a maximum allowable of 2%, which is within the full rights of the author.

Critical notes.

I have no critical notes

Conclusion: The dissertation work "IMPACT OF DIFFERENT HERBS ON BODY PERFORMANCE AND MEAT QUALITY IN AWASSI MALE LAMBS" with author Ph.D. student Master of Agricultural Engineer Georges Hanna al Hanna for the award of the educational and scientific degree "Ph.D." professional direction Livestock breeding, scientific specialty "Selection of farm animals, biology and biotechnology of reproduction" is up-to-date, relevant, undeniable in its originality and extremely very well illustrated.

Despite some technical, spelling and stylistic errors, it does not diminish the high value of the dissertation work.

The dissertation work of the Master of Agricultural Engineering Georges Hanna al Hanna meets the set of criteria, indicators and scientometric data of the minimum national requirements for the acquisition of the relevant degree according to Law on Academic Development in Bulgaria, the Regulations for its implementation and the Internal rules for the development of the academic staff of University of Forestry from 2019.

No plagiarism was found in the dissertation submitted to me for evaluation, and the literary sources used were correctly cited. In support of this, I can point out that the dissertation work is a personal work of the Ph.D. student, carried out in close collaboration with the scientific supervisors Prof. Dr. Zapryanka Shindarska – University of Forestry, Sofia and Prof. Dr. Boulos Al Jamal - Lebanese University.

Based on all of the above, I propose to the respected members of the Scientific Jury to support the dissertation work of the Ph.D. student Master of Agricultural Engineering Georges Hanna al Hanna and to award him the educational and scientific degree "Ph.D.", field of higher education 6. Agrarian Sciences and veterinary medicine, professional direction 6.3 Livestock breeding, scientific specialty "Selection of farm animals, biology and biotechnology of reproduction".

08.05.2024

Prepared the opinion: [redacted]

(Assoc. prof. Georgi Ivanov Georgiev, Ph.D.)