



SCIENTIFIC OPINION

On the dissertation for obtaining the Educational and Scientific Degree 'Doctor' in Higher Education: 3.0. Social, Economic and Legal Sciences, Professional Field: 3.8 Economics, Scientific Specialty: "Organization and management of production" (agriculture and sub-sectors)

Author of the dissertation: Tatyana Ivan Pilyan – PhD student in self-study at the Department of "Management and Marketing".

Doctoral thesis topic: Opportunities and barriers for sustainable agricultural development in the Republic of Serbia.

Scientific opinion by: Prof. Asen Ivanov Konarev, Dr.Sc. 3.0. Social, Economic and Legal Sciences, Professional Field: 3.8. Economics, appointed as a member of the Scientific Jury by order No RD-16-1342/02.12.2021 from the Rector of the Agricultural University, Plovdiv.

1. Relevance of the problem.

Sustainable development of agriculture in individual countries is a problem of growing relevance and importance. Global environmental problems continue to deepen. This requires continuous enrichment and improvement of the methods and tools of environmental management in the planning of sustainable development. The earth is a decisive factor and condition for life, which requires the constant discovery and limitation of the forms, sources and consequences of its pollution and the discovery of opportunities for its protection.

I believe that the relevance and significance of the topic are relatively well defended in the dissertation. The role and application of modern technologies in the field of sustainable agriculture are convincingly presented. In this context, the relevance as well as the need to reveal the opportunities and threats to the sustainable development of agriculture in the specific country of Serbia are presented.

2. Purpose, tasks, hypotheses and methods of research.

The aim of the dissertation is defined as the description and classification of ecology and sustainable development, and the application of modern technologies in agriculture of the Republic of Serbia. In addition, the development of awareness of the importance of ecology and sustainable development and the application of modern technologies in agriculture is stated as a social goal.

I think the goal could have been better defined. This would allow formulating specific and pragmatic tasks to be arranged and performed in a good logical sequence.

The presented research hypotheses are four, structured as follows:

- basic hypotheses – 1 number;
- specialized hypotheses – 3 pieces.

I accept the research hypotheses as well formulated and I believe that they are organically derived from the purpose of the whole research.

Probably for the purpose of some insurance in the completeness of the research methodology, a large number of research methods and techniques are listed, some of which I do not find in the dissertation. However, I would like to emphasize that I appreciate the applied methodological tools as sufficiently rich and precise for convincing and in-depth research.

3. Visualization and presentation of the obtained results.

I appreciate the dissertation as very well illustrated. The results of the research, arguments and comparisons are presented in 33 figures, 29 graphs and 38 tables. In a sense, an overdose has occurred with the presentation of figures and tables by other authors.

The obtained results are presented in a properly structured dissertation. It would be appropriate to draw the main conclusions at the end of each chapter.

In structural terms, the abstract does not repeat the structure of the dissertation but focuses on empirical research. In general, as a reviewer, I have always highly appreciated works that contain the authors' own applied research. I also give this high grade to the present work. In the interest of objectivity, I would like to note that in the abstract the emphasis is overdosed and the balance is disturbed, which gives the impression of underestimating the content of theory and methodology presented in the first two chapters of the dissertation. Nevertheless, I believe that the abstract reflects to the necessary extent the main results of the dissertation.

4. Discussion of results and references.

As I have noted, I value the dissertation as well-structured. The author has correctly identified and presented global environmental issues. The methods and tools of eco-management in sustainable development planning are well defined. Arguably, the predominant part of the first chapter is devoted to land as a living condition, with an emphasis on land pollution.

The second chapter is devoted to the application of modern technologies in the field of sustainable agriculture. The new concept of agricultural production, called 'precision farming', is well represented. The following relations have been thoroughly studied:

- precision agriculture and irrigation;
- precision agriculture and plant protection;
- precision agriculture and existing machinery and equipment;
- information technology and precision agriculture;
- the application of GPS in precision agriculture.

As I have pointed out, I generally appreciate the highly conducted empirical research, so I find it fully justified the fact that 40% of its content is allocated for their reflection in the dissertation. The dissertation conducts a survey, which consistently and logically substantiates the attitude of the respondents to the following important issues:

- what is the choice of applying modern technologies for sustainable agricultural development;

- what results are expected from the application of these technologies;
- what agricultural production is expected;
- whether the application of these technologies can be successfully realized;
- the extent to which the application of these technologies is developed in Republic of Serbia;
- investment and security of sustainable development;
- the need for the application of modern technologies;
- availability of financial resources for farmers to invest in modern technologies.

I evaluate the regression analysis as correctly performed and its results correctly presented.

Literary sources are relatively limited in number, but careful analysis shows that the vast majority of them are specialized and treat the specific problems of the dissertation. Their distribution is as follows:

- 50 books and monographs;
- 19 internet sources;
- 8 normative documents of the Republic of Serbia.

5. Contributions of the Dissertation.

The abstract and the dissertation do not provide a reference to the contributions of the dissertation, so I cannot comment on them.

Despite this omission, I believe that the development of the dissertation has made certain contributions, and I would distinguish them as follows:

1. Scientific Contributions

1.1 A science-based methodology has been developed to study the impact of modern technologies on the sustainable development of agricultural production.

1.2 A methodological base has been formed, consisting of a significant number of methods and tools of eco-management for planning and managing the sustainable development of agriculture.

2. Scientific and Applied Contributions

2.1 A science-based methodology has been developed to study the impact of modern technologies on the sustainable development of agricultural production.

2.2 A methodological base has been formed, consisting of a significant number of methods and tools of eco-management for planning and managing the sustainable development of agriculture.

6. Critical notes and questions.

I have no significant critical remarks, namely the following recommendations:

1. It would be appropriate to conduct a strategic SWOT analysis to identify opportunities and threats to the sustainable development of agriculture in Republic of Serbia.
2. It would be good to define and possibly distinguish the types of technologies, some of which are used as synonyms.
3. Monotony is allowed in the presentation of empirical research in the third chapter.

4. The content of the figures and tables presented in the different versions of the abstract and the dissertation is not linguistically specified.

7. Published articles and citations.

A list of a large number of publications (18) is presented, all of which are collective works. Of these, Tatyana Pilyan is a leading author of 13 publications. I believe that the publications are in relatively authoritative publications.

No reference to the citation is provided.


CONCLUSION:

Based on the dissertation research and its scientific contributions, I think that the dissertation work meets the requirements of the Application of the Act for the Development of the Academic Staff of the Republic of Bulgaria, and the Rules of the Agriculture University for its application, which gives me a reason to rate it **POSITIVE**.

I allow myself to propose to the venerable Scientific Jury also to vote and to award to **TATYANA IVAN PILYAN** the Educational and Scientific Degree '**Doctor**' in the Scientific Specialty: "Organization and management of production" (agriculture and sub-sectors).

18.01.2022
Plovdiv

SCIENTIFIC OPINION BY:


(Prof. A. Konarev, Dr.Sc.)