

SCIENTIFIC OPINION

on a dissertation for obtaining the educational and scientific degree "**Doctor**" in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.1 Crop Growing, scientific speciality "Fruit Growing".

Author of the dissertation: Todor Donkov Donkov, full-time PhD student at the Department of Viticulture and Fruit Growing at the Agricultural University, Plovdiv

Topic of the dissertation: "Study of some rootstock-variety combinations for plums and apricots"

Reviewer: Assoc. Prof. Marieta Kostadinova Nesheva, PhD, Fruit Growing Institute-Plovdiv, field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.1 Crop Production, scientific speciality "Breeding and seed production of cultivated plants", appointed as a member of the scientific jury by Order No RD-16-777/23.06. 2026 by the Rector of the University.

1. Actuality of the problem.

The topic of the dissertation is relevant and of significant scientific and practical importance for modern fruit growing in Bulgaria. Plum and apricot are traditional and economically important fruit species, but their production in the country is still largely based on extensive plantations, created mainly with the seedling rootstock. This rootstock is characterised by high adaptability, but also by a number of disadvantages related to plant heterogeneity, the formation of multiple shoots, and limited opportunities for intensification of production. In the context of changing soil and climatic conditions and the need to increase productivity and economic efficiency, the study of suitable rootstocks for different varieties of plums and apricots is of significant interest to science and practice. In this context, the dissertation developed by Todor Donkov is up to date, aimed at obtaining scientifically grounded data on the interaction between rootstock and variety and the possibilities for using less vigorous and more efficient rootstocks for intensification of production.

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

The aim of the dissertation is clearly formulated in studying and evaluating the influence of various rootstocks on the growth and reproductive characteristics of modern varieties of plums and apricots in a nursery and fruit orchard, with a view to determining the most suitable combinations for the specific soil and climatic conditions of the region.

3. Illustration and presentation of the results obtained.

The dissertation is 148 pages and includes all necessary sections. The results are well illustrated in 36 figures, 28 tables and 7 photos, which allows the reader to get a complete and real picture of the established trends.

4. Discussion of the results and references.

The detailed literature review makes a very good impression, with 342 sources included: 21 in Cyrillic and 321 in Latin. The "Results and Discussion" section is built on

the basis of a detailed and in-depth analysis, reflecting the behaviour and influence of the different rootstock-variety combinations on the growth and reproductive manifestations of the varieties in orchard. The behaviour of rootstocks and plant manifestations that they induce on the grafted plum and apricot varieties in the nursery has also been studied.

5. Contributions of the dissertation.

Based on the results obtained, 3 contributions of original scientific nature, 5 scientific and applied, and 2 of confirmatory nature were formulated, the most important of which are:

Scientific contributions

1. For the first time in Bulgaria, extensive information has been obtained about the rootstocks of peach-almond hybrids GF 677 and Garnem grafted with Stanley interstock and the impact they have on the growth and reproductive manifestations of the apricot variety Hargrand in a nursery and orchard.
2. For the first time in Bulgaria, extensive information has been obtained about the rootstocks of peach-almond hybrids GF 677 and Garnem with Stanley interstock and the influence they have on the flowering phenophase of the apricot variety Hargrand.
3. For the first time in Bulgaria, information has been obtained about the rootstocks of peach-almond hybrids GF 677 and Garnem with a Stanley interstock and the impact they have on the plants' physiological parameters of the apricot variety Hargrand.

Scientific and applied contributions

1. The studied rootstocks of peach-almond hybrids GF 677 and Garnem with a Stanley interstock provide good compatibility with the apricot variety Hargrand.
2. The studied rootstocks Wavit and Ishtara have good compatibility with the plum varieties included in the study.
3. Peach-almond hybrids with Stanley interstock induce higher productivity on the apricot variety Hargrand compared to the traditionally used in our country Myrobalan seedling without interstock.
4. The rootstocks of peach-almond hybrids GF 677 and Garnem with Stanley interstock in combination with the apricot variety Hargrand, as well as the rootstocks Ishtara and Wavit in combination with the plum varieties included in the study, do not produce suckers, unlike the traditionally used Myrobalan seedling rootstock.
5. As a result of our research, we can recommend the use of the rootstocks of peach-almond hybrids GF 677 and Garnem with Stanley interstock for the production of apricot fruits, as a good alternative compared to the traditionally used Myrobalan seedling rootstock (*Prunus cerasifera*).

6. Critical remarks and questions.

The phenological phases in the dissertation are reported based on the Nedev et al. methodology. In order to achieve better international comparability of the results obtained, I recommend that the PhD student use the international BBCH scale in his future research work.

In connection with the results presented, I would like to raise the following questions:

1. Since it is not sufficiently clear from the section "Materials and methods" how the recommended planting distance was determined, on what methodological

basis and how was the recommended planting distance calculated for the individual variety-rootstock combinations for plum and apricot?

2. Given that in the case of plum, the Myrobalan seedling provides the highest total yield per tree, while the Ishtara and Wavit rootstocks limit vegetative growth and do not form suckers, which of the studied rootstocks would you recommend for establishing a plum orchard, and on what indicators is this recommendation based?

7. Published articles and citations.

In connection with the PhD thesis, the doctoral student has presented 3 scientific publications, referenced in the worldwide database CABI, Web of Science (all databases). The scientific publications carry a total number of 30 points with which the doctoral student meets all requirements of the LAW ON THE DEVELOPMENT OF THE ACADEMIC STAFF IN THE REPUBLIC OF BULGARIA. The presented abstract is well structured and objectively reflects the content of the dissertation work.

CONCLUSION:

Based on the various research methods learned and applied by the doctoral student, the correctly performed experiments, the generalizations and conclusions made, I believe that the presented dissertation meets the requirements of the LAW ON THE DEVELOPMENT OF THE ACADEMIC STAFF IN THE REPUBLIC OF BULGARIA and the Regulations of the Agricultural University for its application, which gives me grounds to evaluate it **POSITIVE**. I propose to the honourable Scientific Jury to also vote positively and award Todor Donkov Donkov the educational and scientific degree "Doctor" in the scientific speciality "Fruit growing".

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