



16 - 17 November 2023

PRELIMINARY RESULTS REGARDING THE RESEARCH ON ALTERNATIVE METHODS OF COMBATING PESTS IN GOOSEBERRY CULTURE

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Abstract:

The paper presents preliminary results of research on alternative methods for pest control in gooseberry cultivation carried out from March to September 2023 in the experimental field of Domnesti, Ilfov County, in the southern region of Romania. Three gooseberry species were used: *Invicta*, *Captivator* and *Hinnonmaki Red*. The effects of infusions of *Urtica dioica*, *Mentha piperita*, *Thymus serpyllum* and *Mentha pulegium* were studied and the results were compared.

Significant attacks in the experimental field were caused by: *Cryptomyzus ribis*, *Aphis grossulariae*, *Philaenus spumarius*, *Metcalfa pruinosa*.

The conducted treatments had different effects, in all cases the maximum positive outcome was *Thymus serpyllum*.

• Introduction

The high biological adaptability of Gooseberry, especially in the face of climate change, makes them increasingly suitable for cultivation.

Gooseberry are rich in phenolic compounds, calcium, phosphorus, iron, zinc, fluorine, potassium, and vitamins A, B1, B2, C. They are a significant source of dietary fiber. Regular consumption of gooseberries reduces the risk of coronary diseases, vascular accidents, pulmonary diseases and cancer.

The research conducted on gooseberries can be applied to other species of the *Ribes* genus (*Ribes nigrum*, *Ribes rubrum*, *Ribes nigrum*, *Ribes aureum*, etc.) because they share common monophagous pests. In the case of polyphagous pests, the research can be applied to other plant species.

• Material and method

The research was conducted in the experimental field of Domnesti, Ilfov County, from March to September 2023.

The experiment was carried out in five variants with three replications, each replication consisting of three gooseberry varieties - *Invicta*, *Captivator*, and *Hinnonmaki Red*.

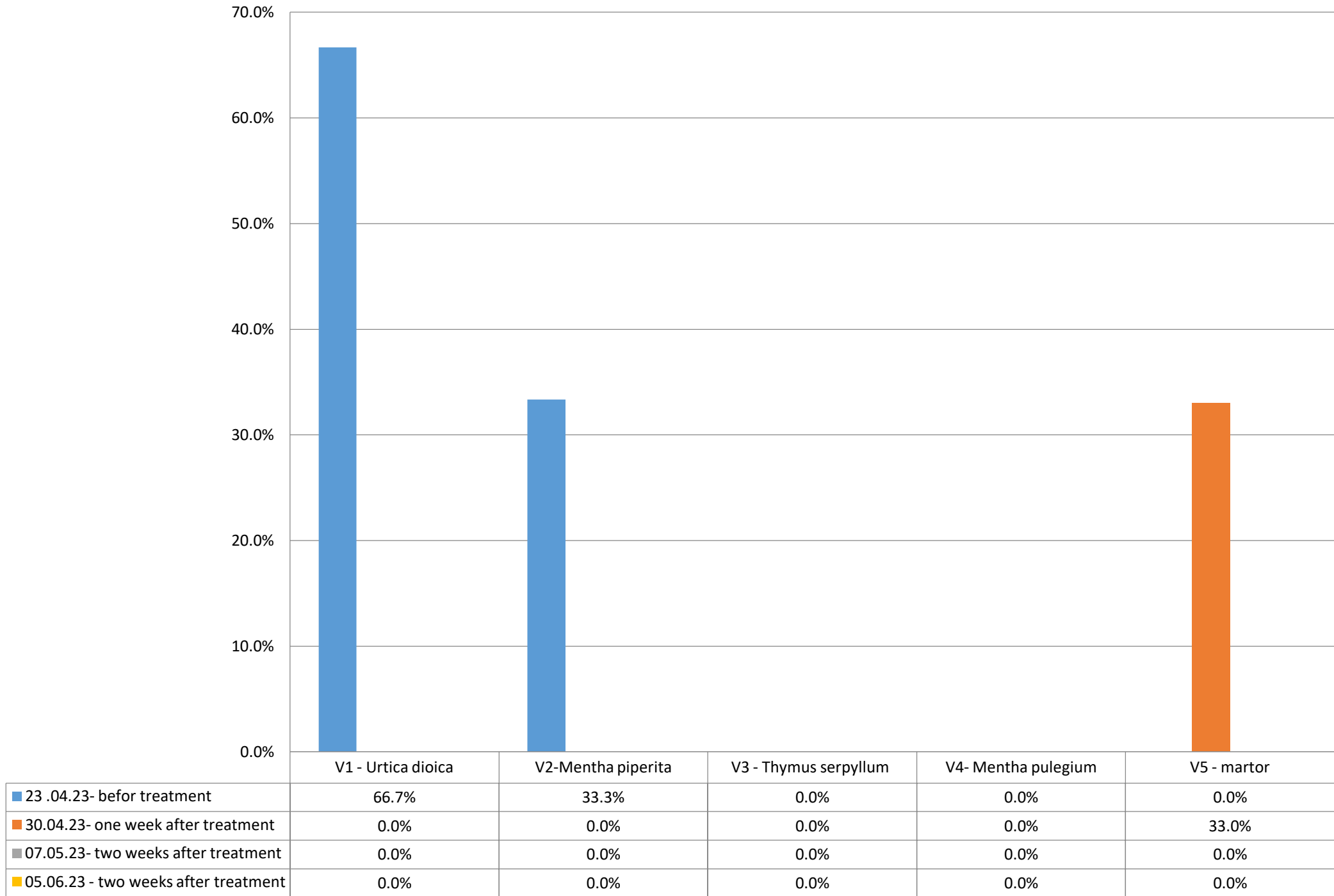
The treatments used were: *Urtica dioica* infusion, *Mentha piperita* infusion, *Thymus serpyllum* infusion, *Mentha pulegium* infusion, and a control group.

The technical materials used were the camera of a Huawei P30 Lite phone and the digital microscope Mustool G1200.

• Results and discussions

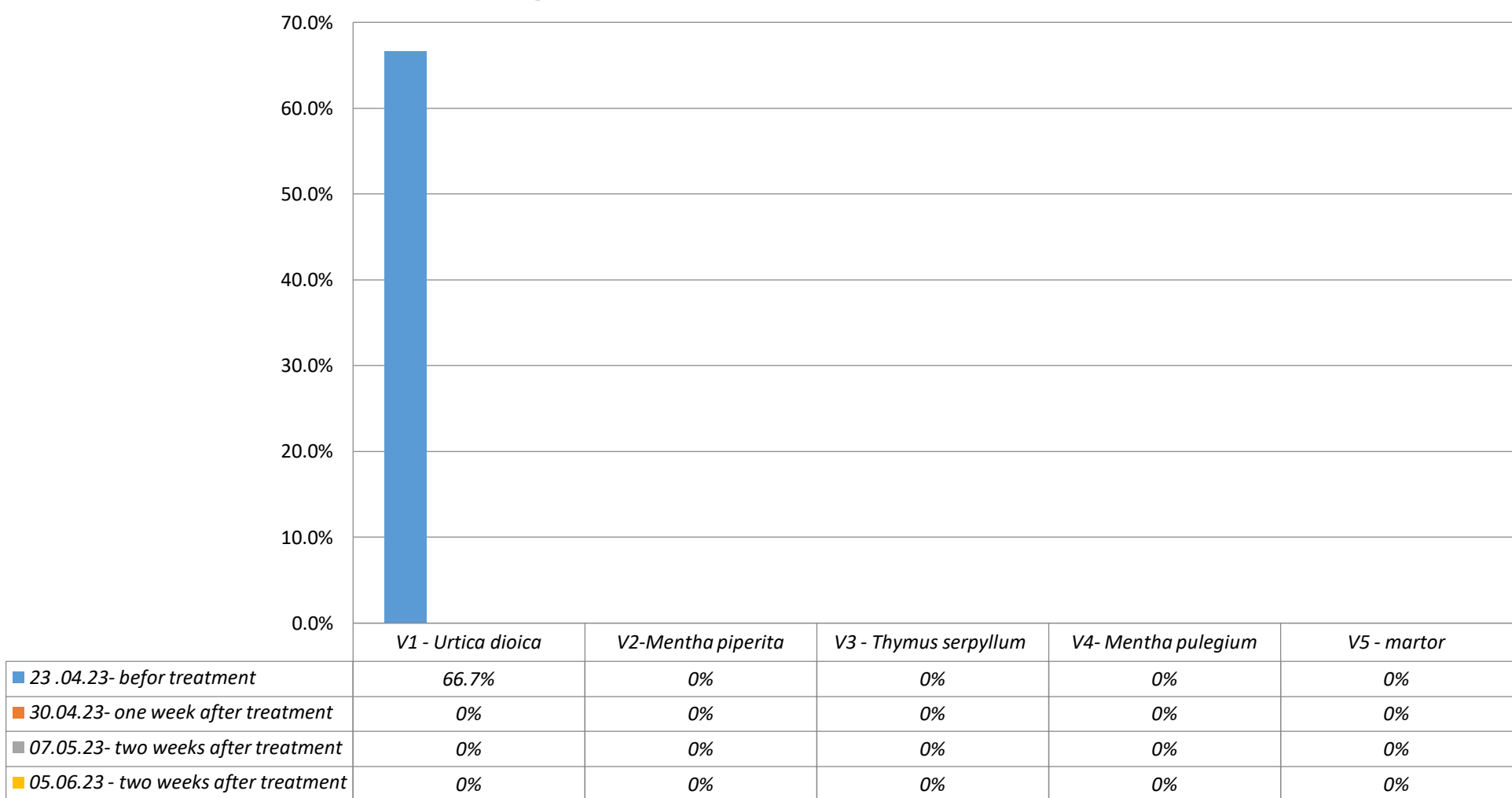
Significant attacks in the experimental field were caused by:

Cryptomyzus ribis was encountered in the experimental field from April to June 2023. The frequency of *Cryptomyzus ribis* attacks is depicted in Graphic 1 for the *Captivator* variety. There were no signs of potential attacks on the other varieties.

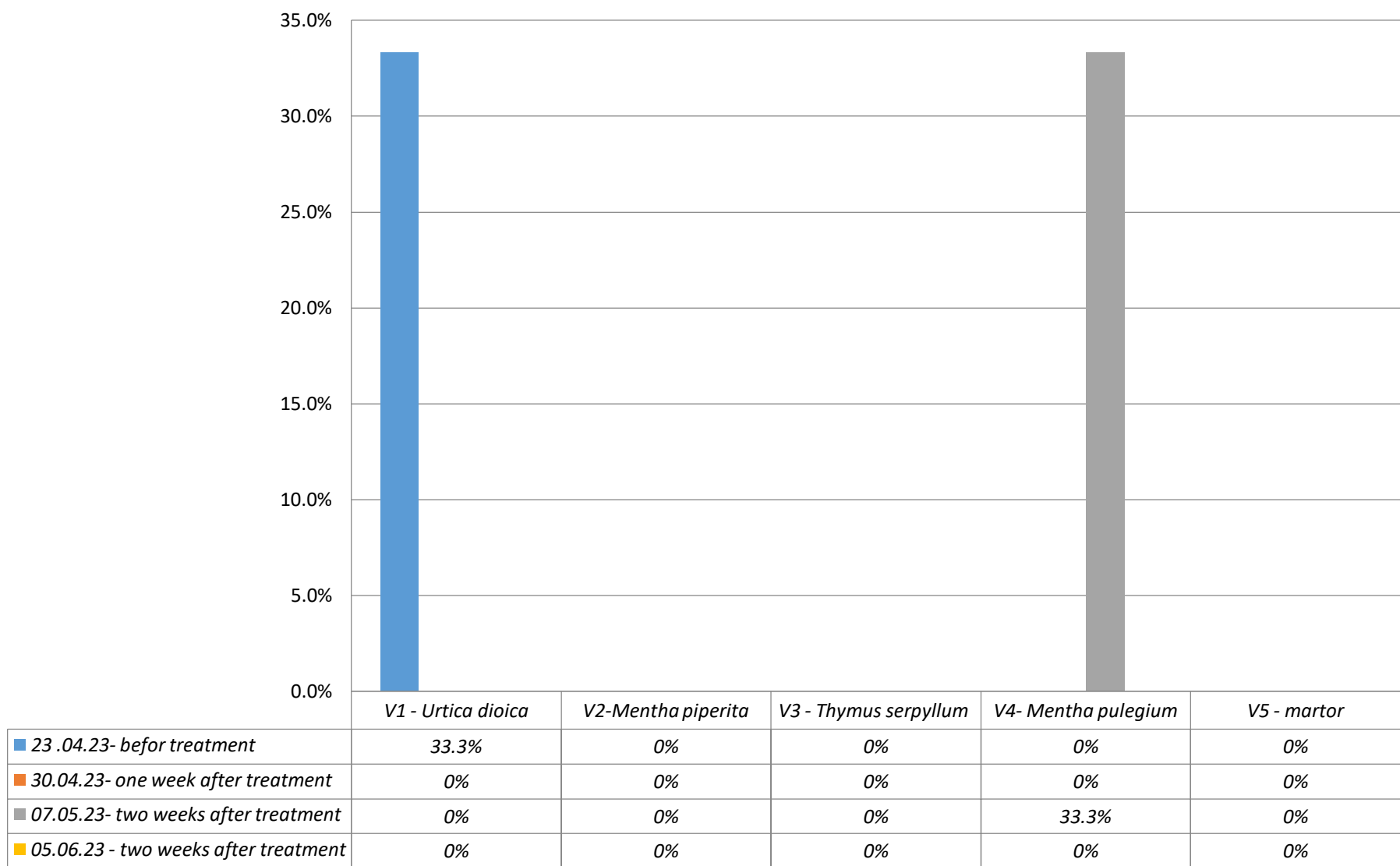


Graphic 1 Frequency of *Cryptomyzus ribis* attacks on the *Captivator* variety

Aphis grossulariae was found in the experimental field from April to June 2023. The evolution of the frequency of *Aphis grossulariae* attacks is depicted in Graph 2 for the *Invicta* variety and Graph 3 for the *Captivator* variety.



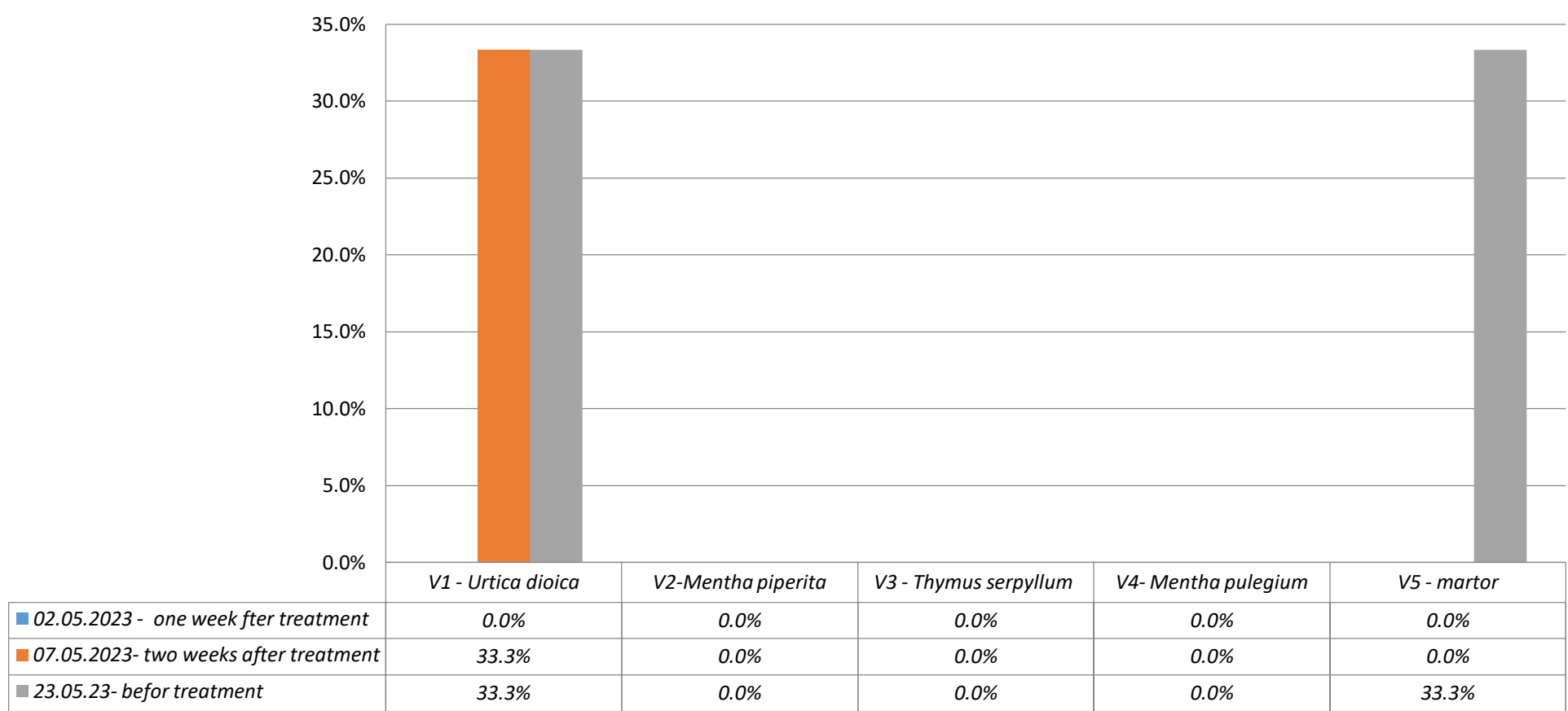
Graphic 2 Frequency of *Aphis grossulariae* attacks on the *Invicta* variety



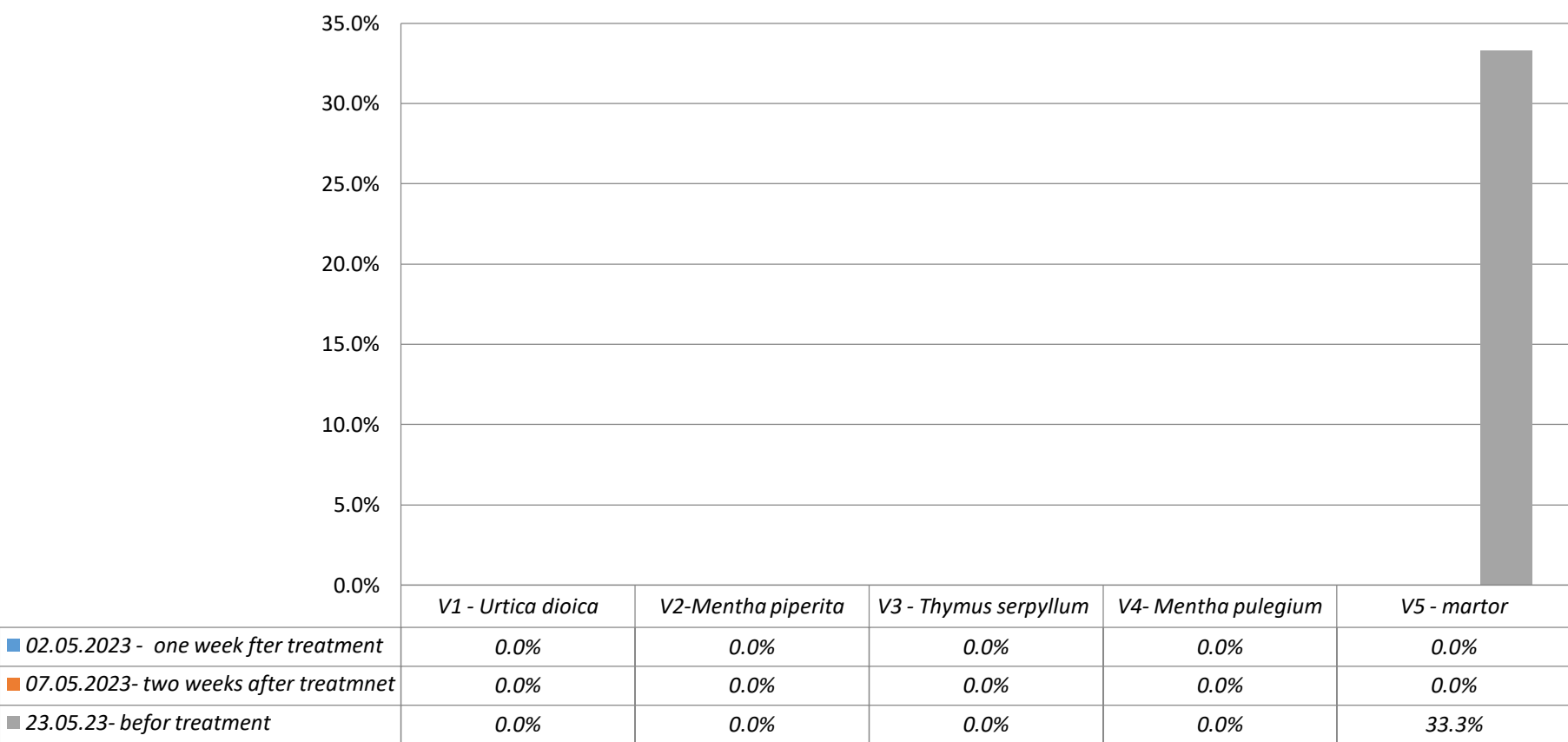
Graphic 3 Frequency of *Aphis grossulariae* attacks on the *Captivator* variety

No colonies of *Aphis grossulariae* were observed on the *Hinnonmaki Red* variety.

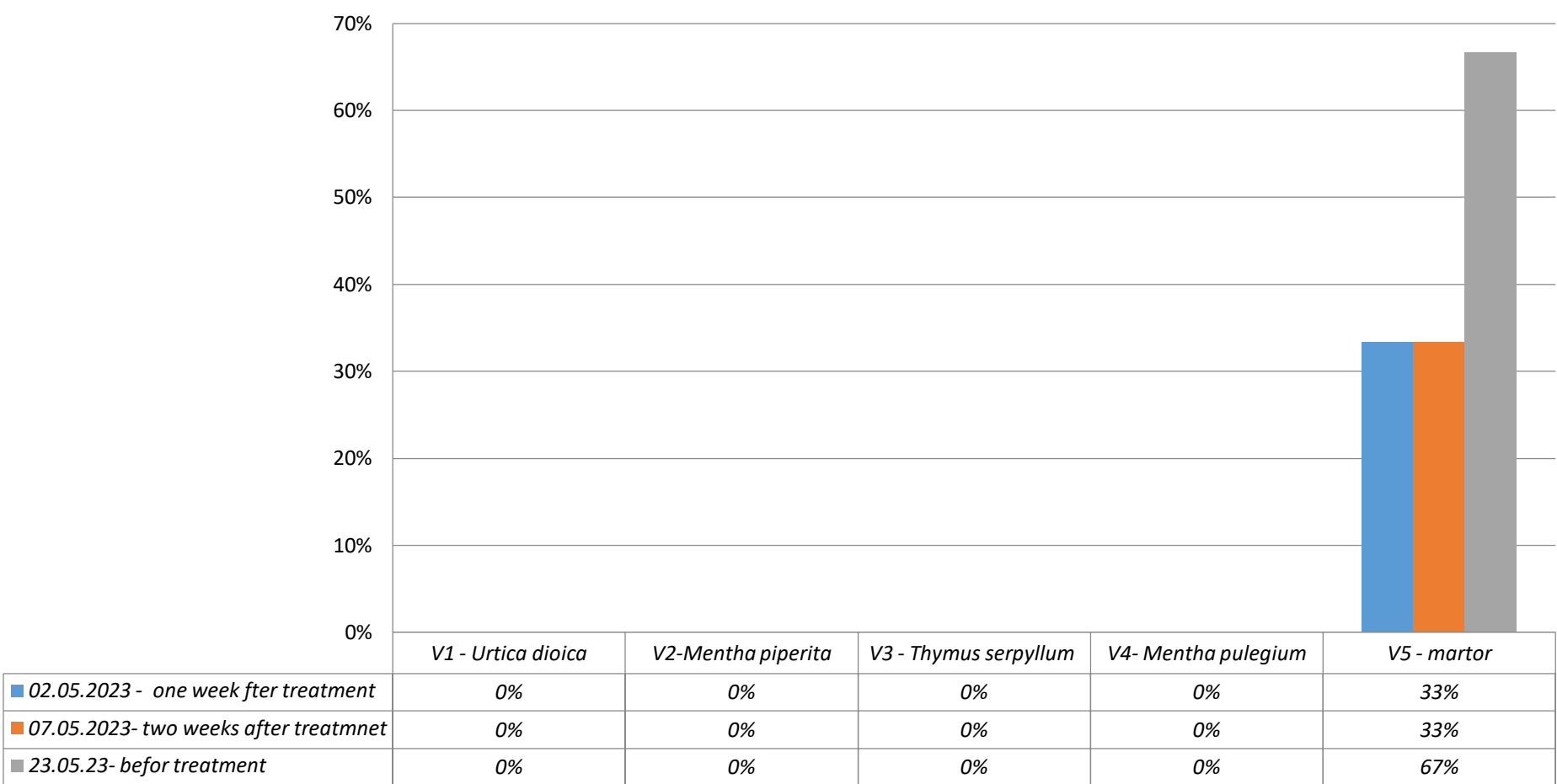
Philaenus spumarius was encountered in the experimental field in May 2023. The evolution of the frequency of *Philaenus spumarius* attacks for each gooseberry variety is represented in Graphs 4, 5, and 6.



Graphic 4 – Frequency of *Philaenus spumarius* attacks on the *Invicta* variety

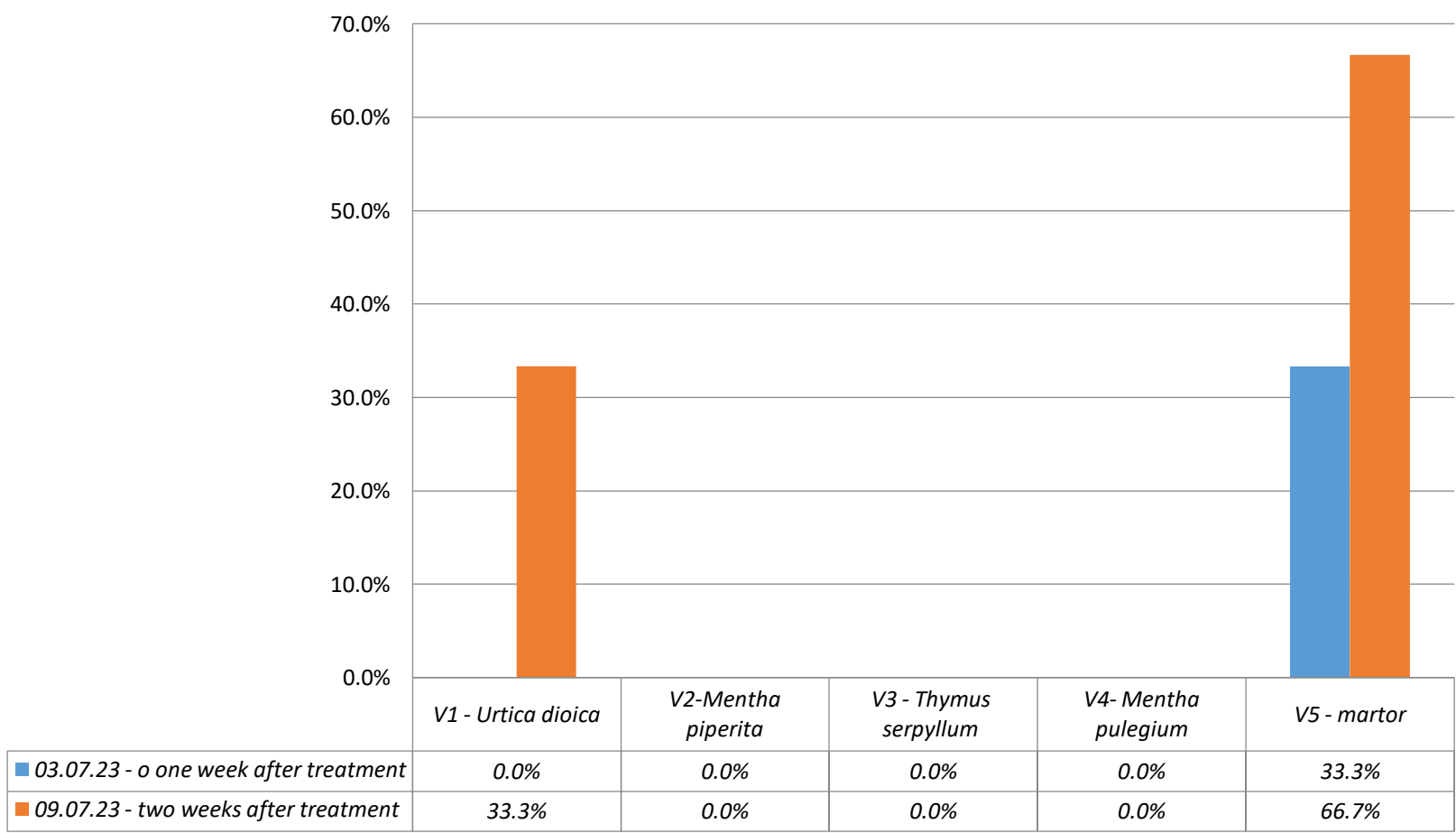


Graphic 5 – Frequency of *Philaenus spumarius* attacks on the *Captivator* variety

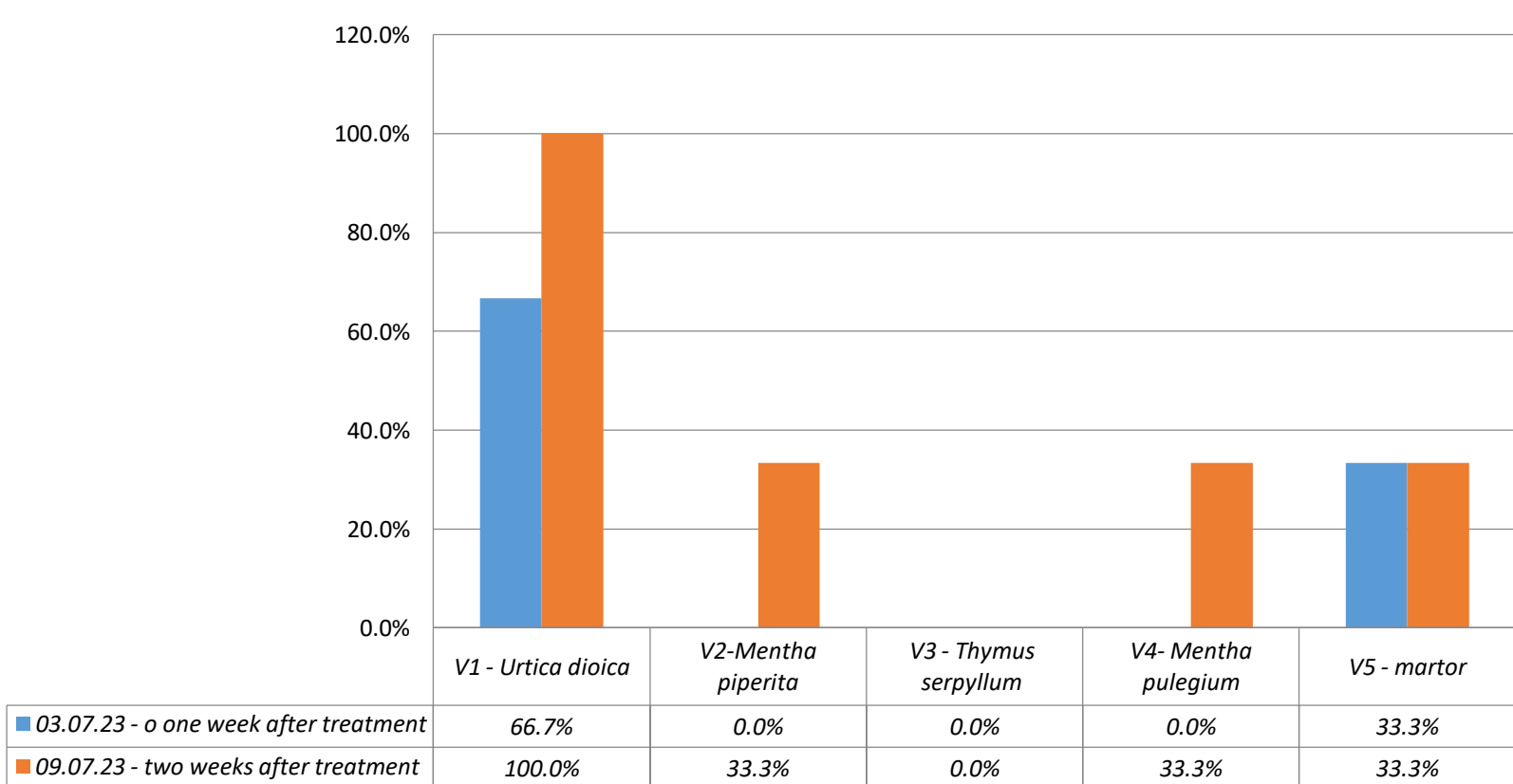


Graphic 6 – Frequency of *Philaenus spumarius* attacks on the *Hinnonmaki Red* variety

Specimens of *Metcalfa pruinosa* (adults and larvae) and honeydew were found in the experimental field in July 2023.



Graphic 7 Presence of honeydew on the *Captivator* variety



Graphic 8 Presence of honeydew on the *Hinnonmaki Red* variety

• Conclusions

The preliminary research results are as follows:

Invicta Variety:

- resistant to *Cryptomyzus ribis*.
- *Aphis grossulariae* All treatment variants used were effective
- *Philaenus spumarius* did not appear on variants treated with *Thymus serpyllum* and *Mentha pulegium*.
- resistant to *Mecalfa pruinosa*

Captivator Variety:

- susceptible to *Cryptomyzus ribis*. All treatment variants used were effective.
- *Urtica dioica*, *Mentha piperita* and *Thymus serpyllum* were effective against *Aphis grossulariae*. Treatment with *Mentha pulegium* had lower effectiveness over time.
- *Philaenus spumarius* did not appear on variants treated with *Thymus serpyllum* and *Mentha pulegium*.
- The least effective treatment against *Mecalfa pruinosa* was with *Urtica dioica*.

Hinnonmaki Red Variety:

- resistant to *Cryptomyzus ribis* and *Aphis grossulariae*
- all treatments were effective against *Philaenus spumarius*
- the only effective treatment against *Mecalfa pruinosa* was with *Thymus serpyllum*

Acknowledgement: This research work was carried out with the support of University of Agronomic Sciences and Veterinary Medicine of Bucharest.