GOCE DELCEV UNIVERSITY - STIP
FACULTY OF AGRICULTURE

The use of predators for the control of *Frankliniella occidentalis* (Thysanoptera: Thripidae) at pepper in protected area

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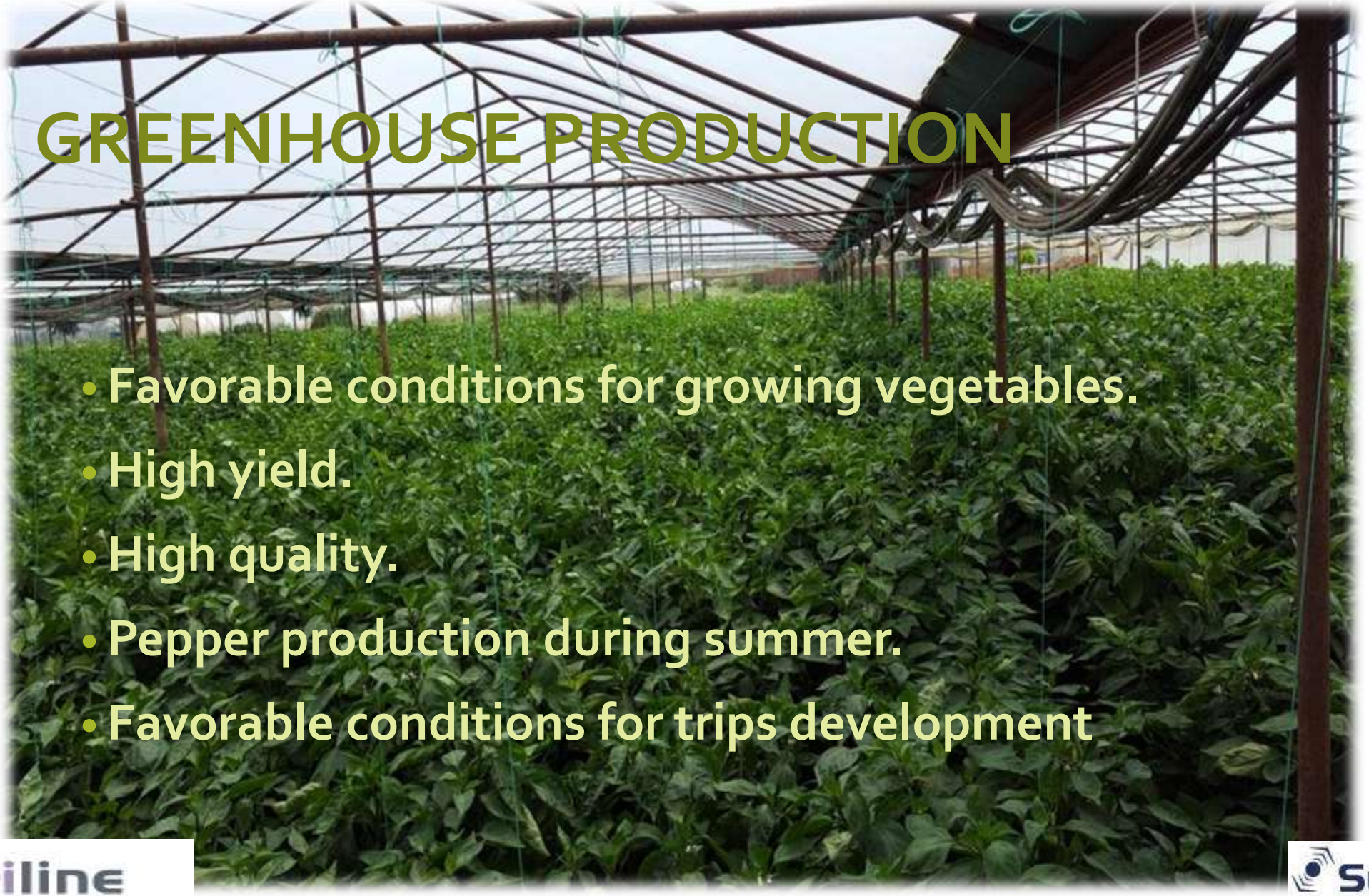
Oriline

Swirskiline

GREENHOUSE PRODUCTION



- Favorable conditions for growing vegetables.
- High yield.
- High quality.
- Pepper production during summer.
- Favorable conditions for trips development

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Western flower thrips- *Frankliniella occidentalis* Perg. (Thysanoptera: Thripidae)

- Polyphagous insect.
- Causes significant damages in protected areas.
- Optimum temperature for developemnt: 25-30 °C.
- There are 12 – 15 generation per year.
- Transmits the virus of bronze necrosis of tomato.
- Vectors of the viruses are the adults and the second larvae instars.

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Material and methods

- The experiment is set in greenhouses, covering an area of 2000 m² and 1000 m²
- Pepper varieties:
  - Dabile – type Kapija,
  - Prosenikovo – chilli pepper Fortes F1
- Commercial production
- Usual agrotechnics
- Number of examined plants per plot – 100
- Average number of thrips per plant
- Average number of thrips per plant before introduction of predators
- Average number of thrips per plant at first, second and third control

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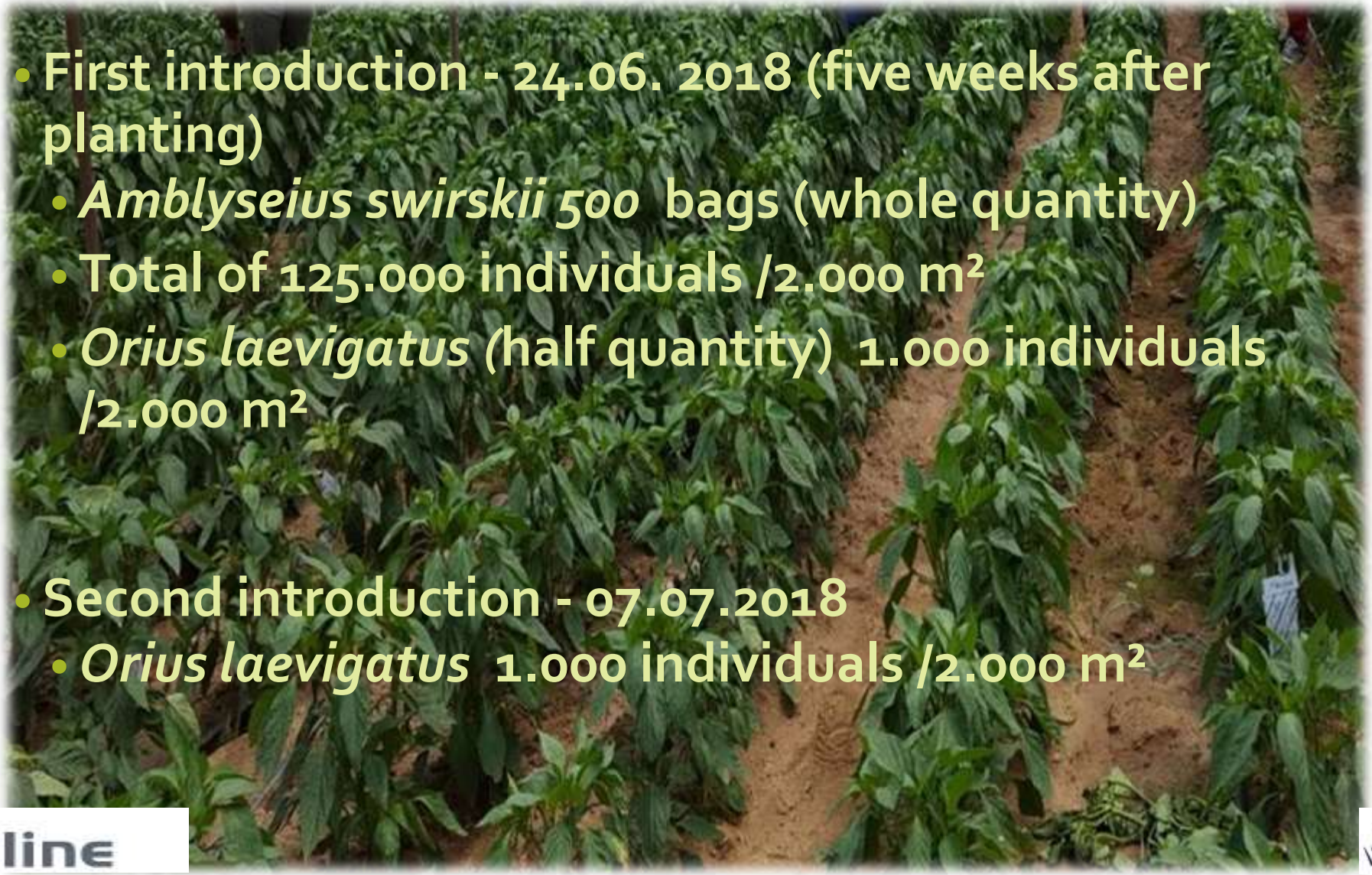
Introducing predators - Dabile



- First introduction - 24.06. 2018 (five weeks after planting)
  - *Amblyseius swirskii 500* bags (whole quantity)
  - Total of 125.000 individuals /2.000 m²
  - *Orius laevigatus (*half quantity) 1.000 individuals /2.000 m²
- Second introduction - 07.07.2018
  - *Orius laevigatus* 1.000 individuals /2.000 m²

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Control – Dabile

- First control - 10.07. 2018
- Second control - 24.07. 2018
- Third control - 08.08. 2018

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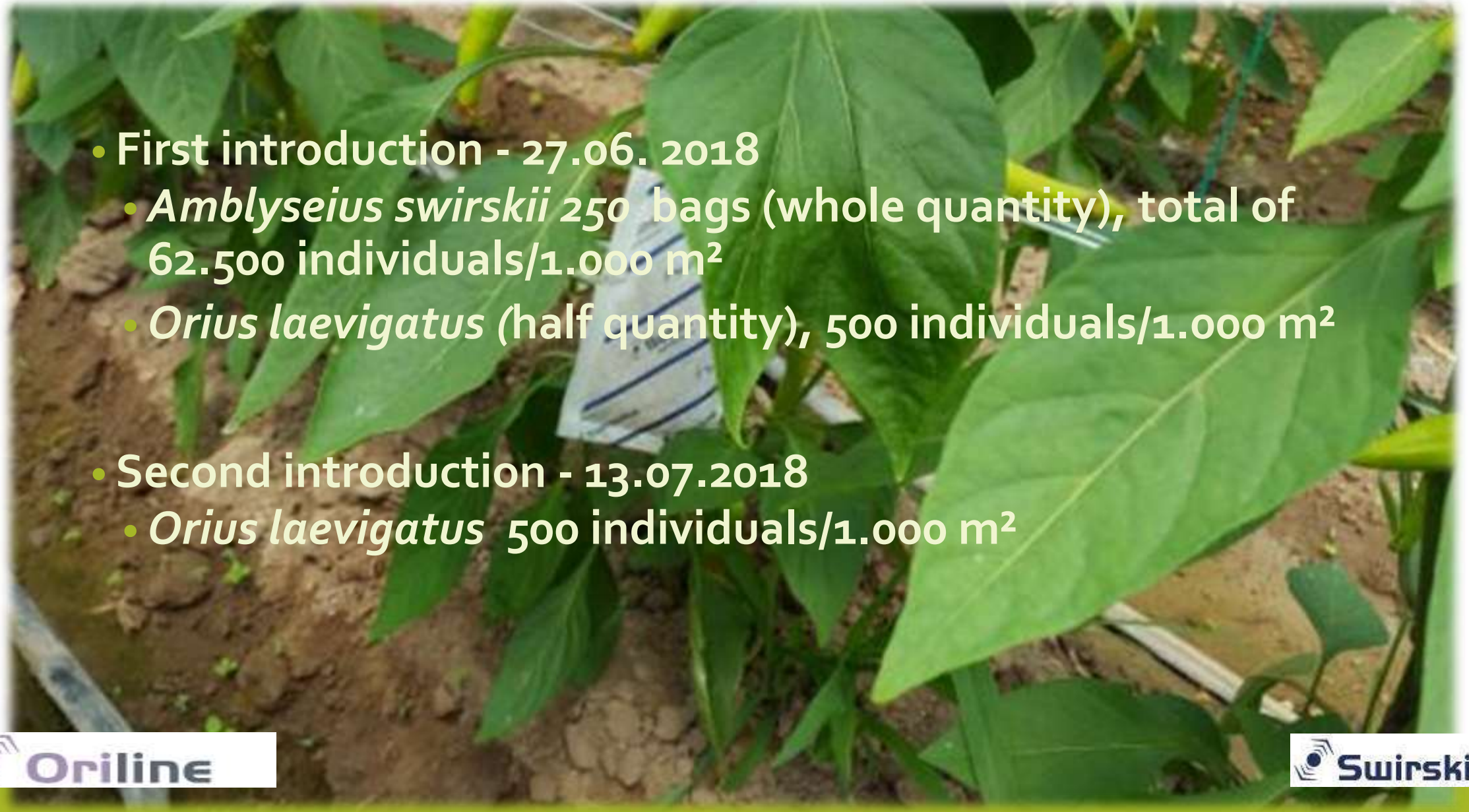
Introducing predators - Prosenikovo



- First introduction - 27.06. 2018
  - *Amblyseius swirskii 250* bags (whole quantity), total of 62.500 individuals/1.000 m²
  - *Orius laevigatus (*half quantity), 500 individuals/1.000 m²
- Second introduction - 13.07.2018
  - *Orius laevigatus* 500 individuals/1.000 m²

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Control – Prosenikovo

- First control
  - 15.07. 2018
- Second control
  - 30.07. 2018
- Third control
  - 15.08. 2018

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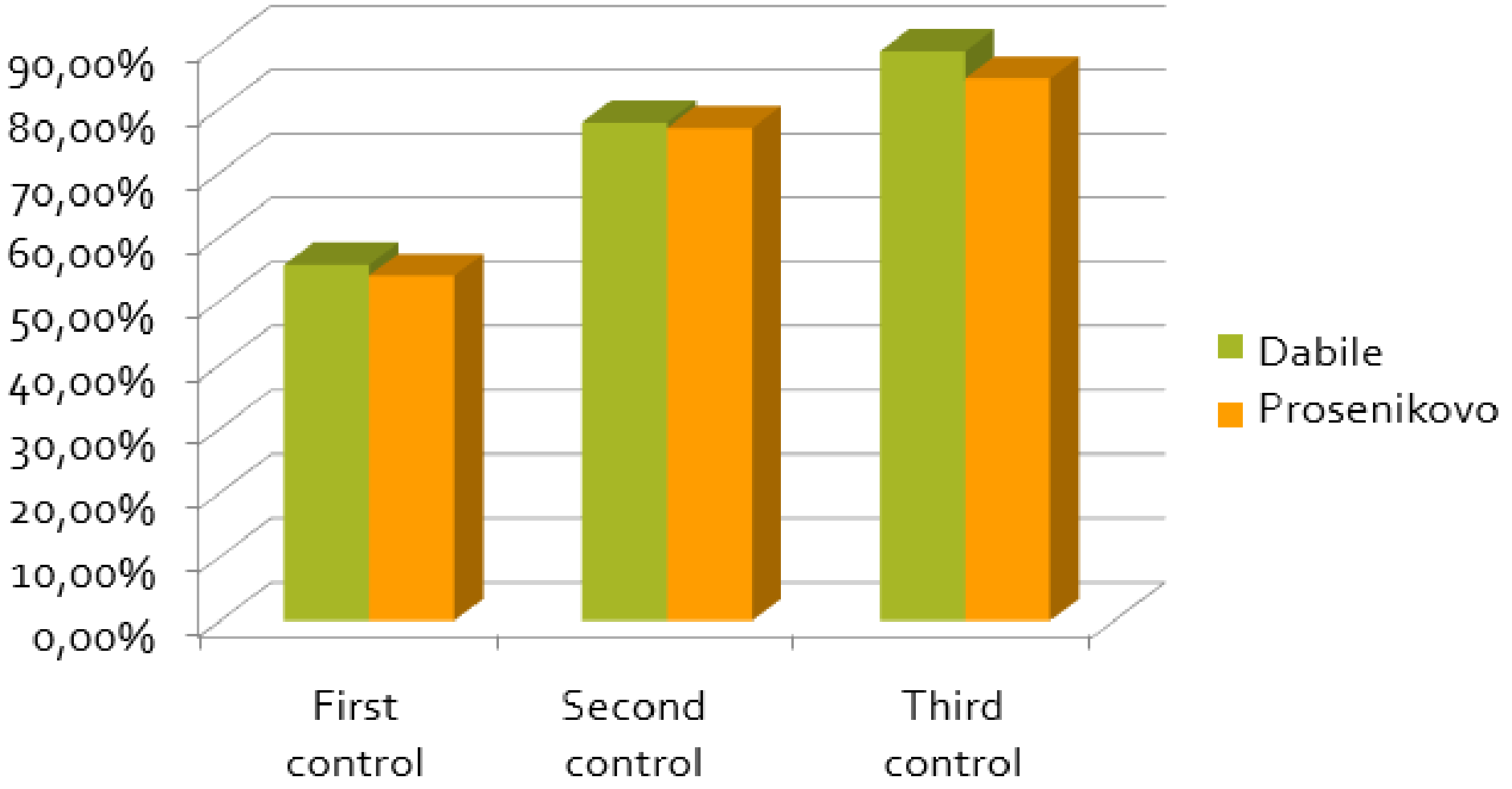
Results

Table 1. Average number of thrips per plant prior introduction and after first, second and third control, in localities Dabile and Prosenikovo in 2018

	Prior introduction	First control	Second control	Third control
Dabile	9	4	2	1
Prosenikovo	13	6	3	2

Graph 1. Efficacy of predators in controlling the population of thrips, calculated by Abbot



Conclusion

- High efficiency of natural enemies has been established in controlling the number of thrips population in both localities.
- The efficiency at the locality Dabile is higher, due to the earlier introduction and the presence of a lower number of thrips.
- In the Prosenikovo locality, a lower nuance was observed, due to the later introduction and the presence of a higher number of thrips.