Plantweerbaarheid



Kirsten Leiss

Senior Onderzoeker Plantgezondheid

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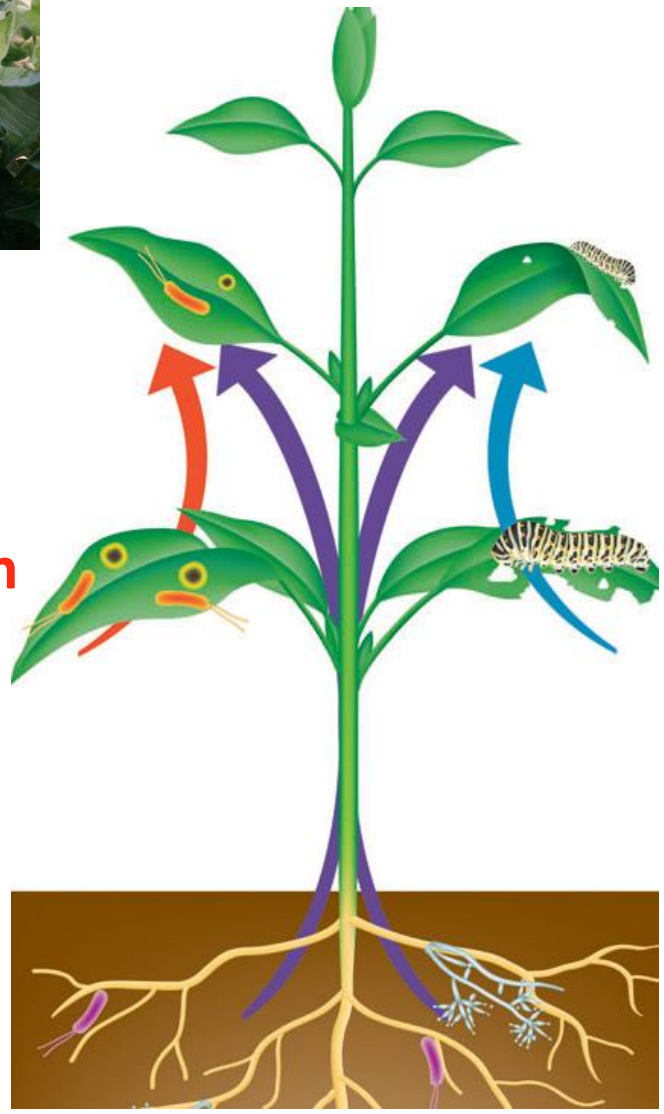
Artemis Kennisdag 11 November 2026

Plantweerbaarheid



Salicylzuur SA

Biotrofe pathogenen







Jasmonzuur JA

Insecten

Necrotrofe pathogenen



Ethyleen

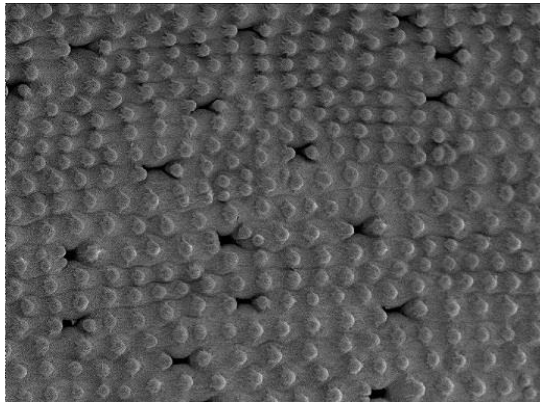
Microbioom

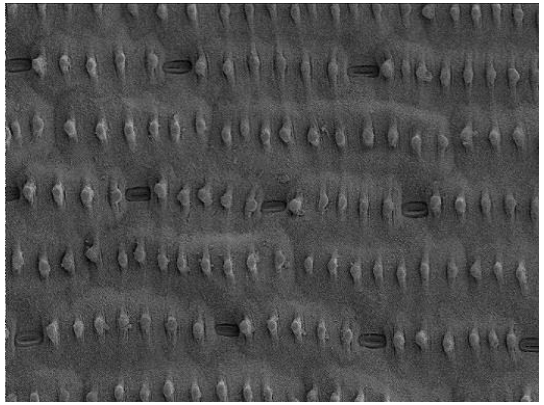
Aangepast van Pieterse et al. 2014

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Morfologische kenmerken



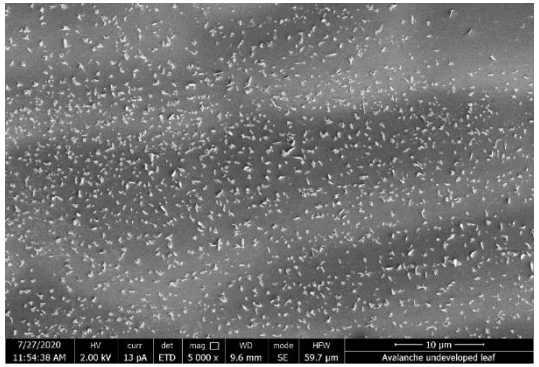


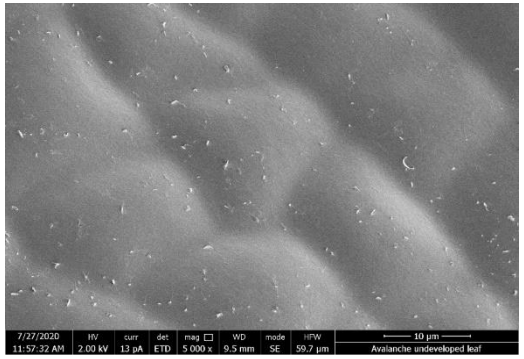


Wahyuni, Leiss et al. 2021; 2024 Plants





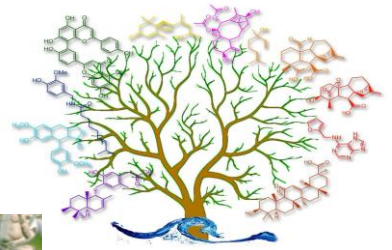




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Chemische kenmerken

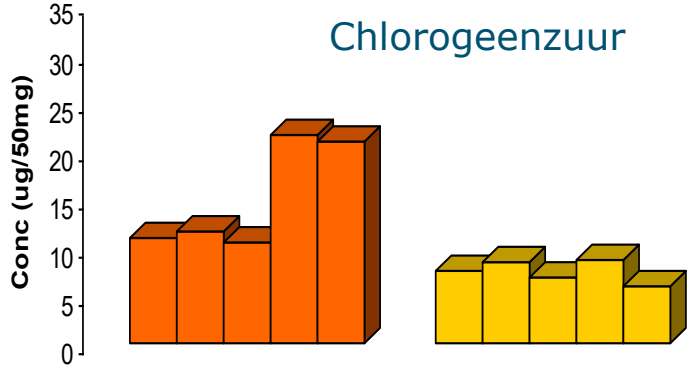








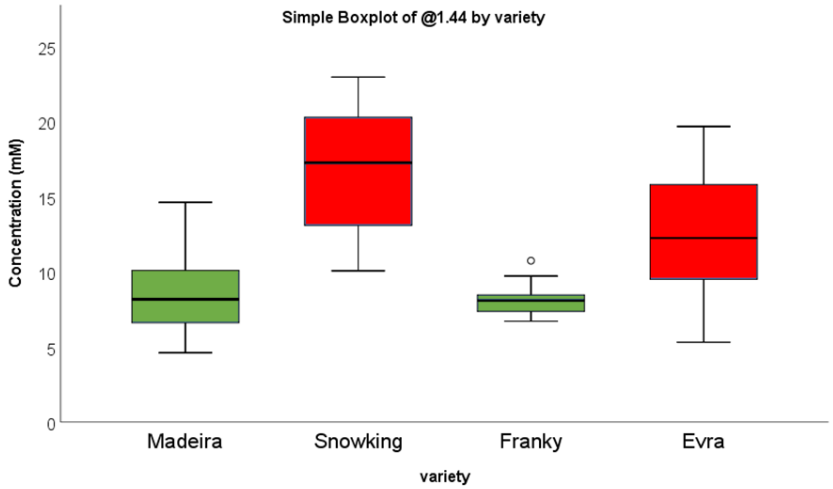
Gerberine



Chlorogeenzuur

minder vatbaaar vatbaar

Leiss et al. 2009 Plant Physiol.



Mascellani, Leiss et al. 2022 Fr. Plant Sci.

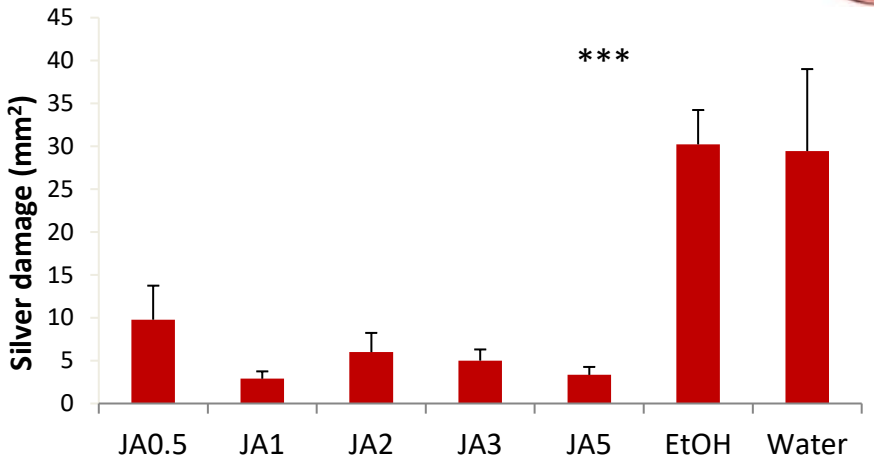
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Jasmonzuur



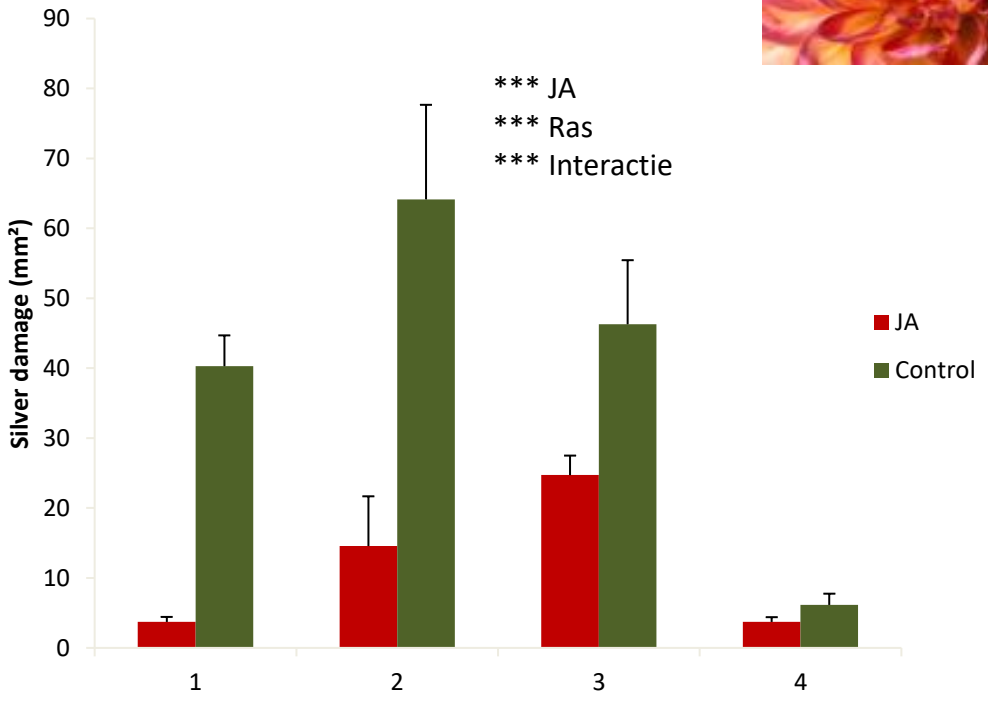


Moneymaker



Mouden, Leiss et al. 2020 Front. Plant Sci.

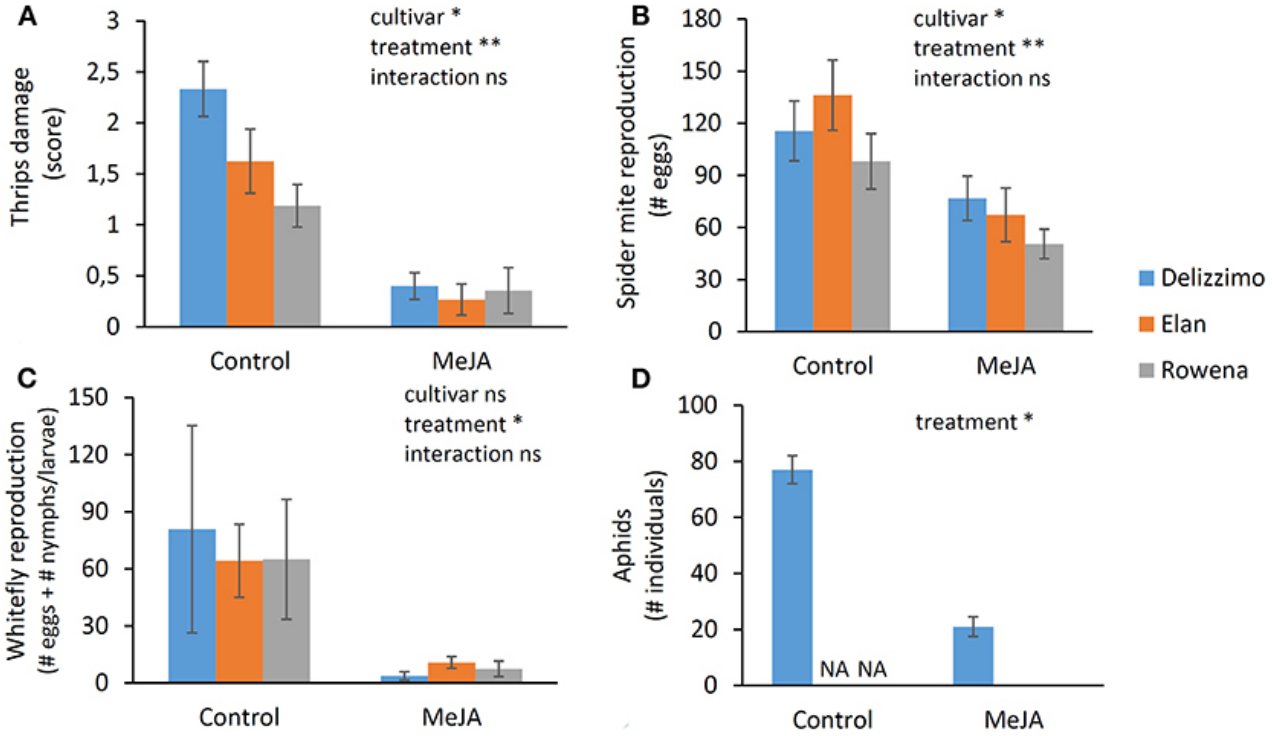




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Jasmonzuur







Trips



Spint



Witte vlieg



Luis

Mouden, Leiss et al. 2021 Front. Plant Sci.

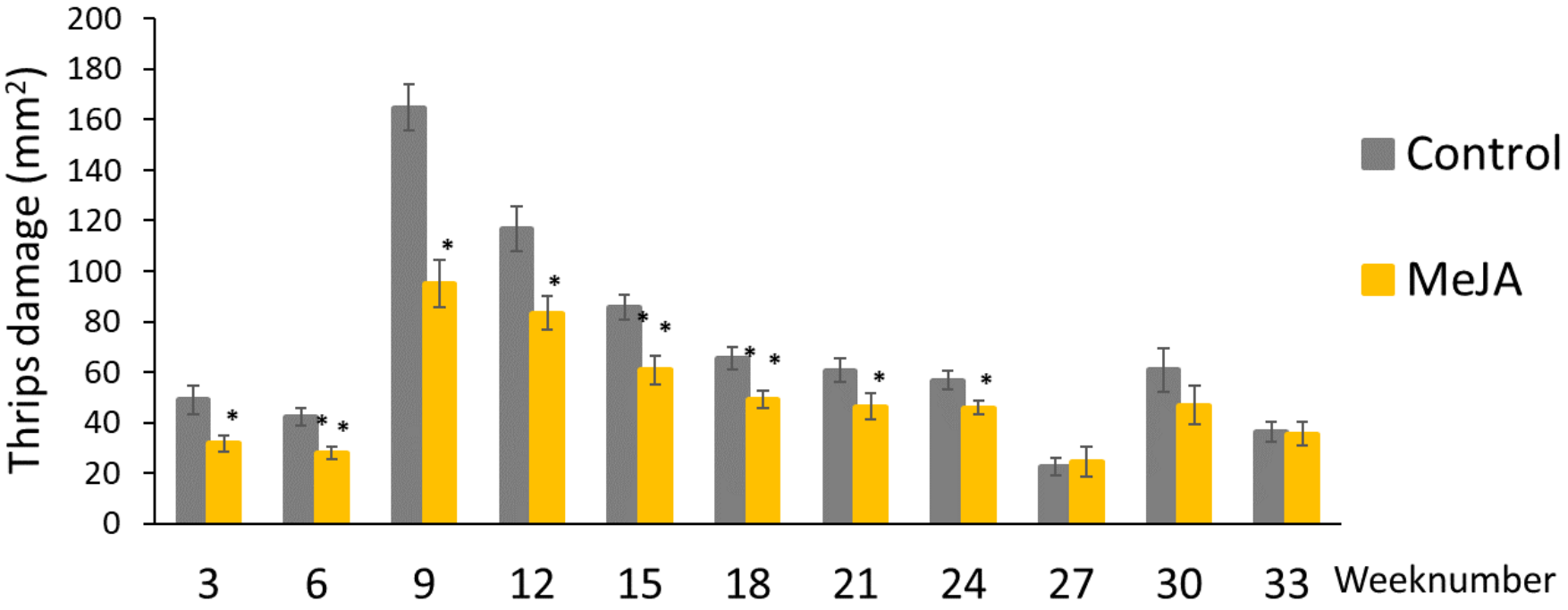
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Jasmonzuur opkweek en productie





Delissimo



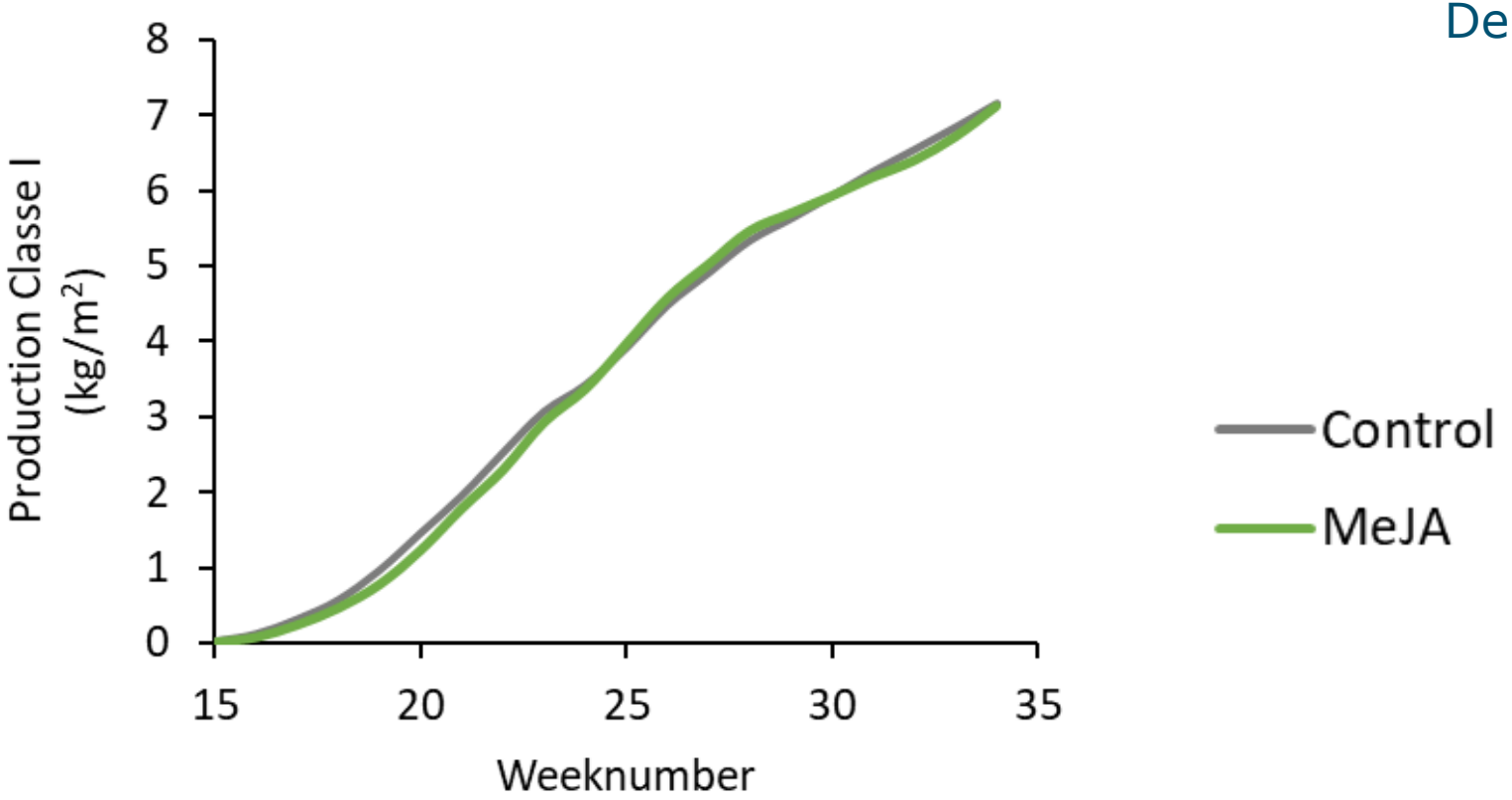
Mouden, Leiss et al. 20 Front. Plant Sci.

Jasmonzuur opkweek en productie





Delissimo



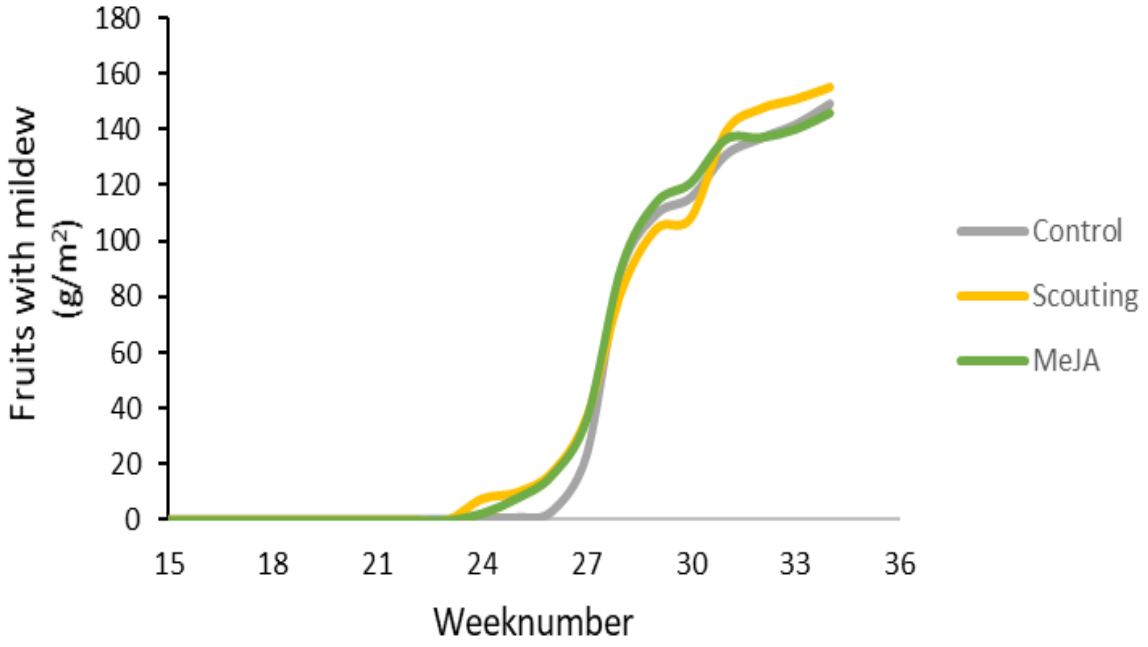
Mouden, Leiss et al. 2021 Front. Plant Sci.

Jasmonzuur opkweek en productie





Delissimo



Mouden, Leiss et al. 2021 Front. Plant Sci.

Salicylzuur



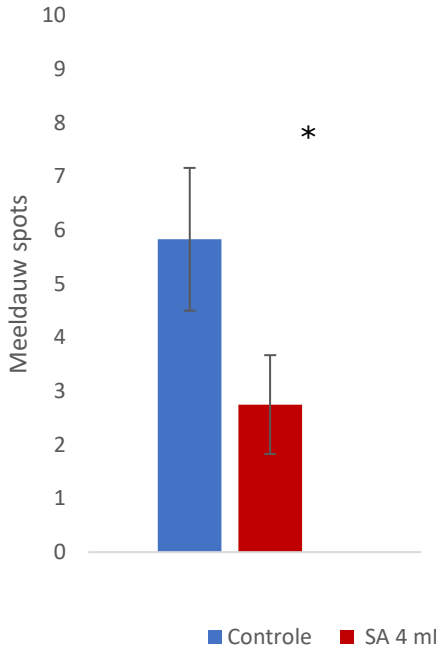
High Power

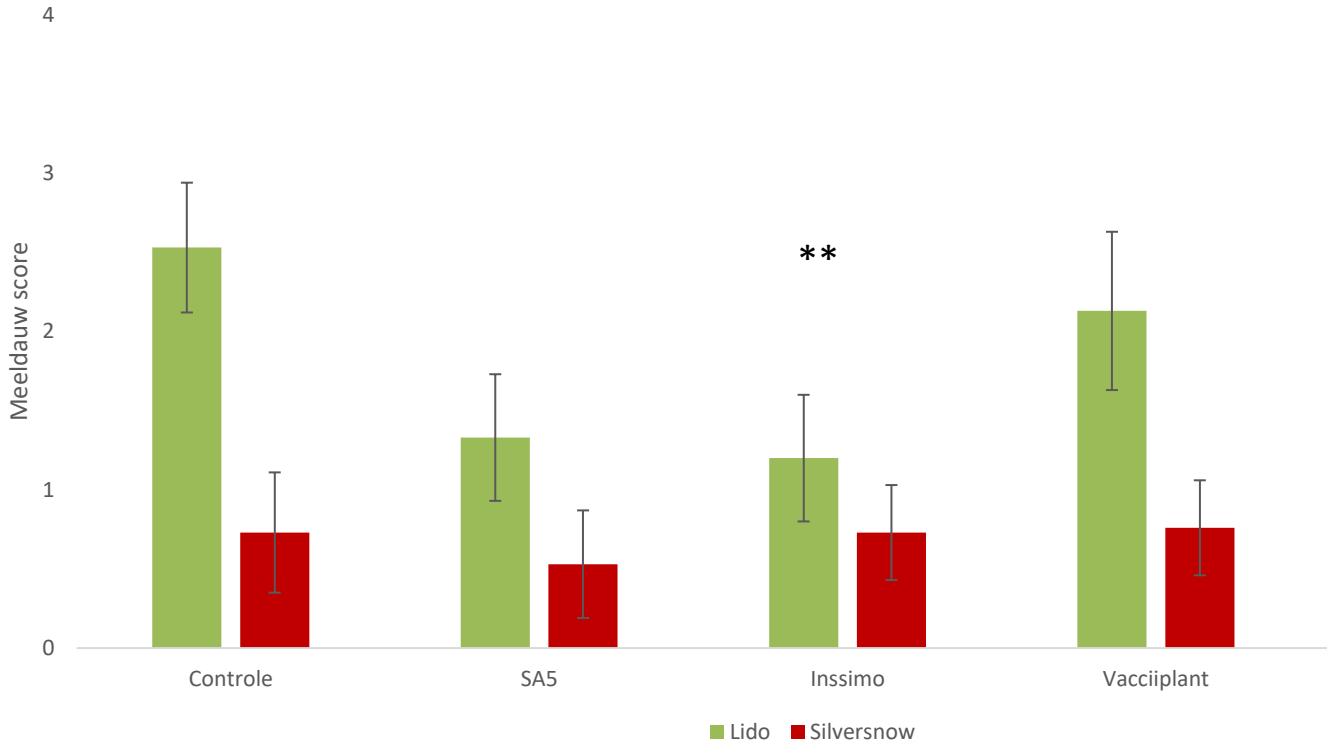




Kimsey







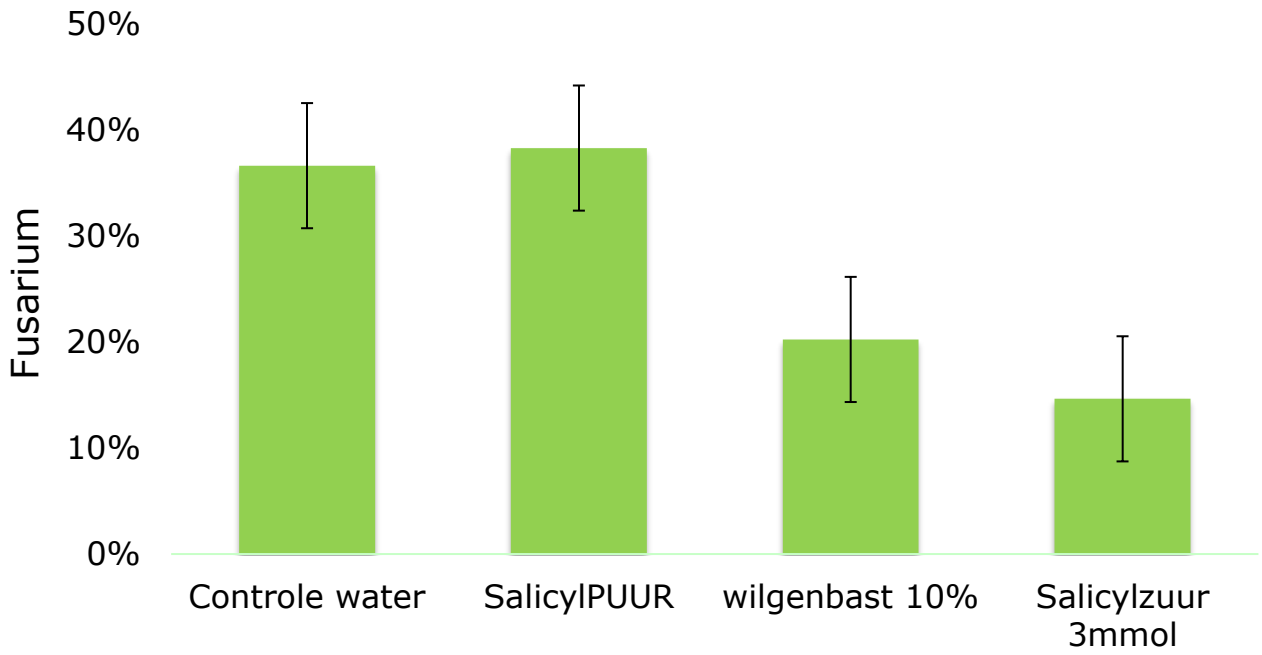
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Salicylzuur schuimen





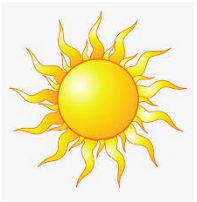
Candy Prince



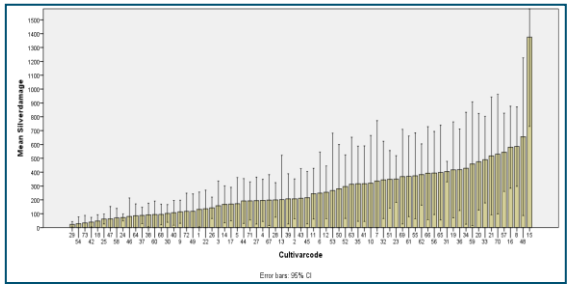
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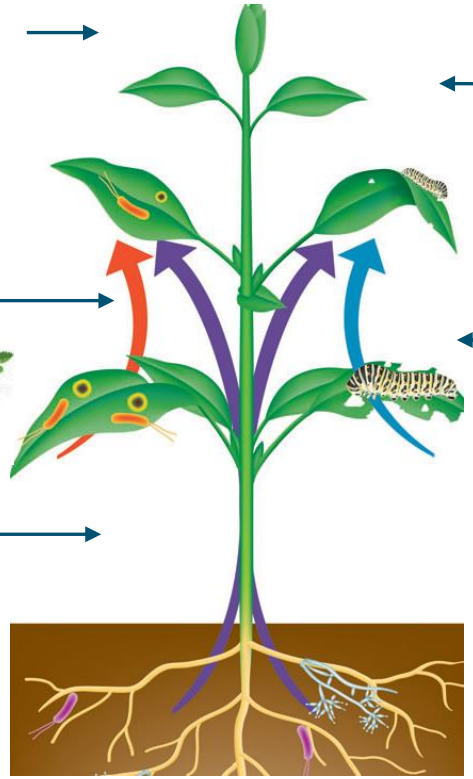
Weerbaar teeltsysteem





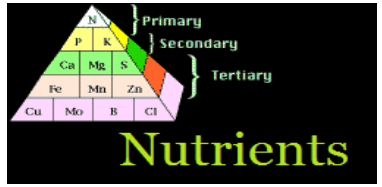














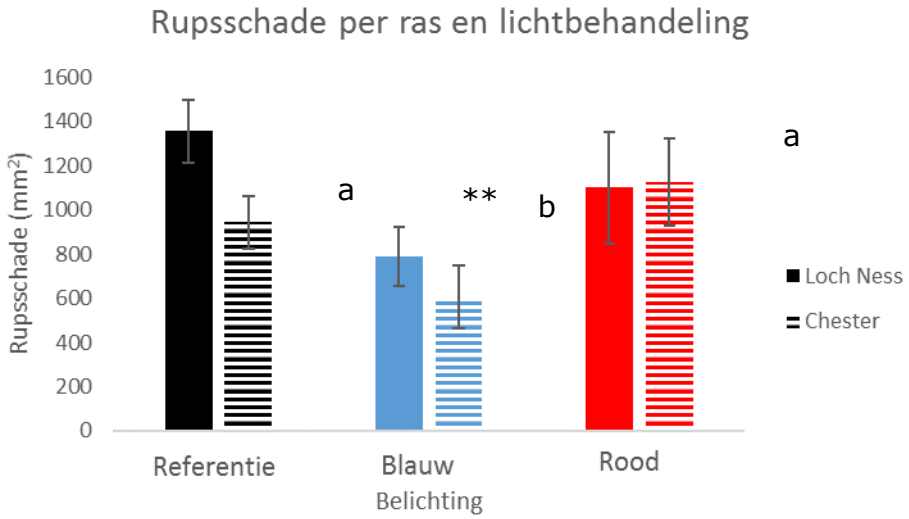


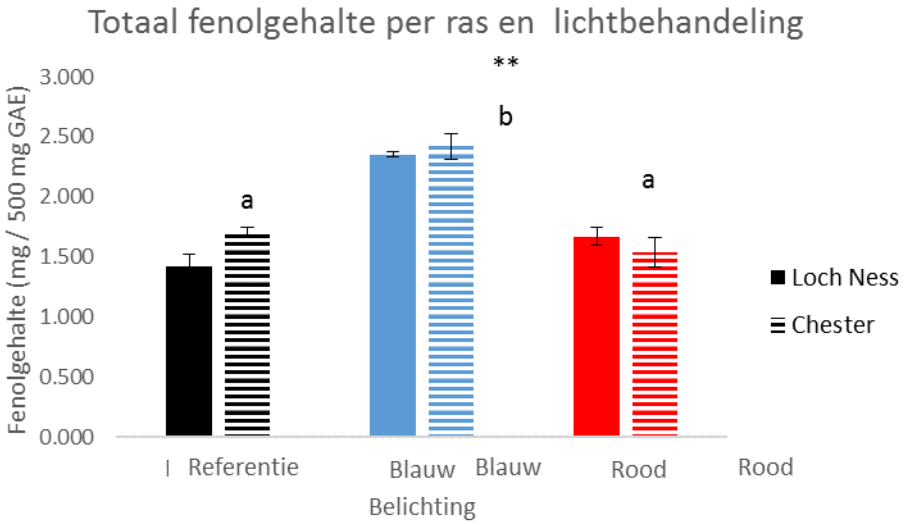
Licht





Turkse mot





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UV-C

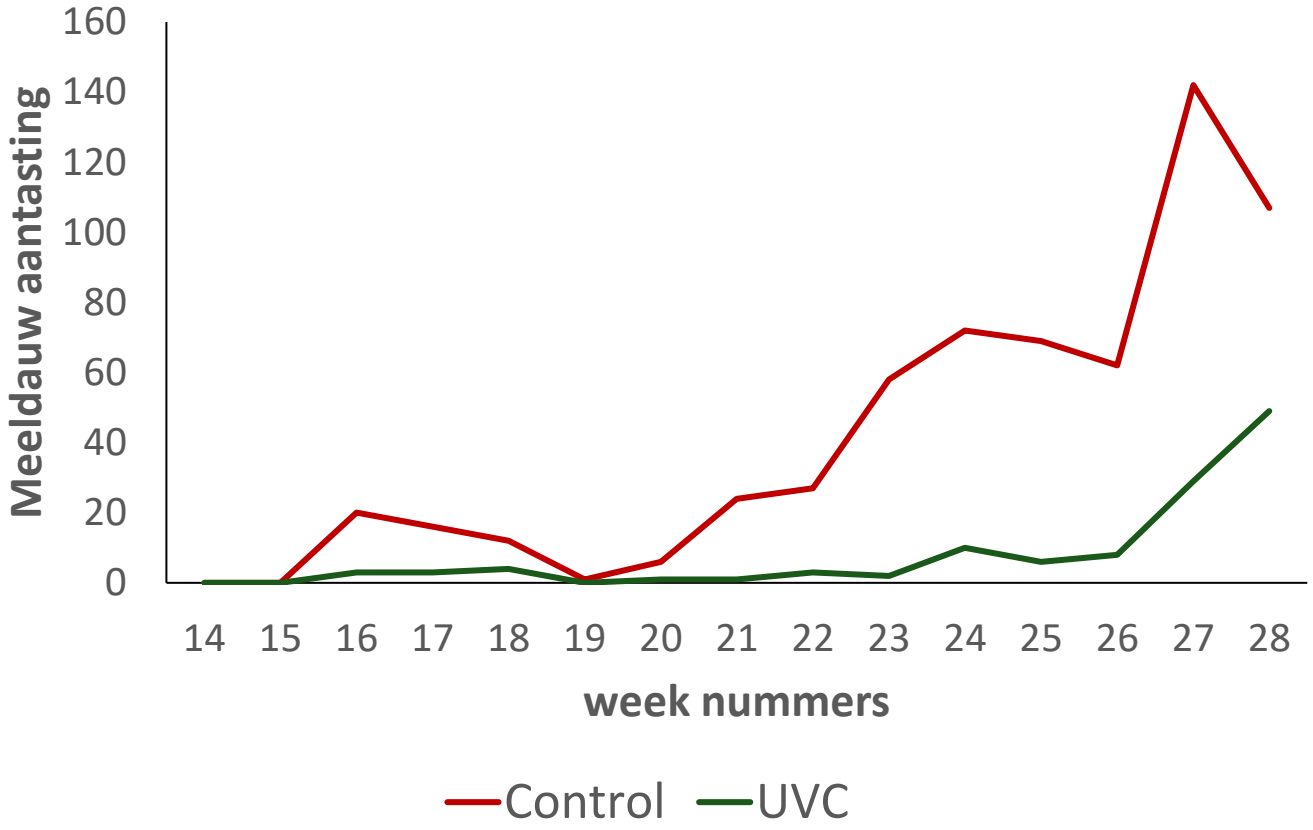




Delissimo

3 x keer per week 90- 100 J/m^2

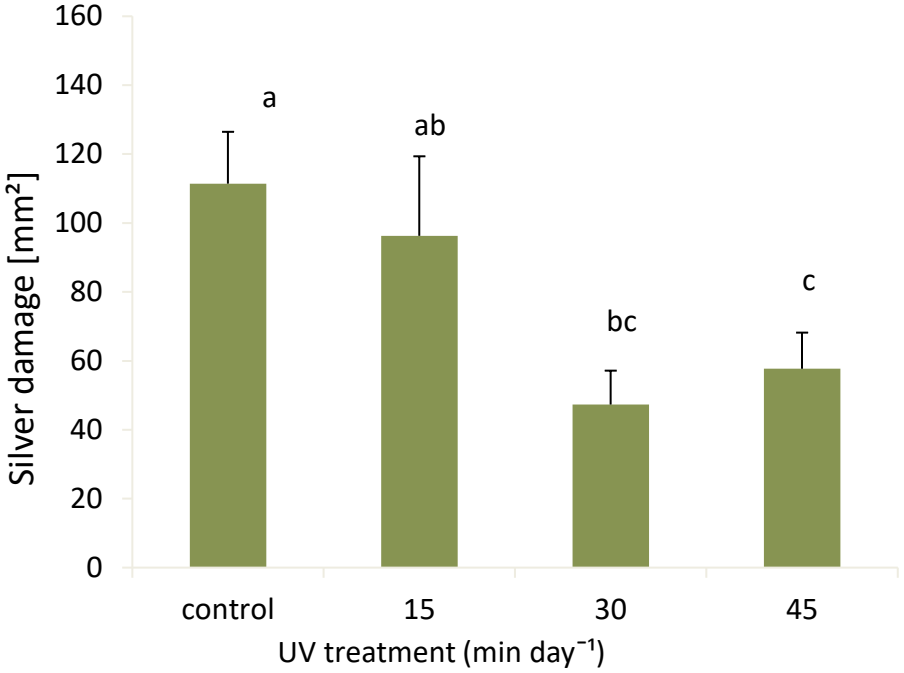
UVC Flash: 1 sec 600 J/m^2 alle 10 dagen tegen meeldauw buiten: courgette, wijn

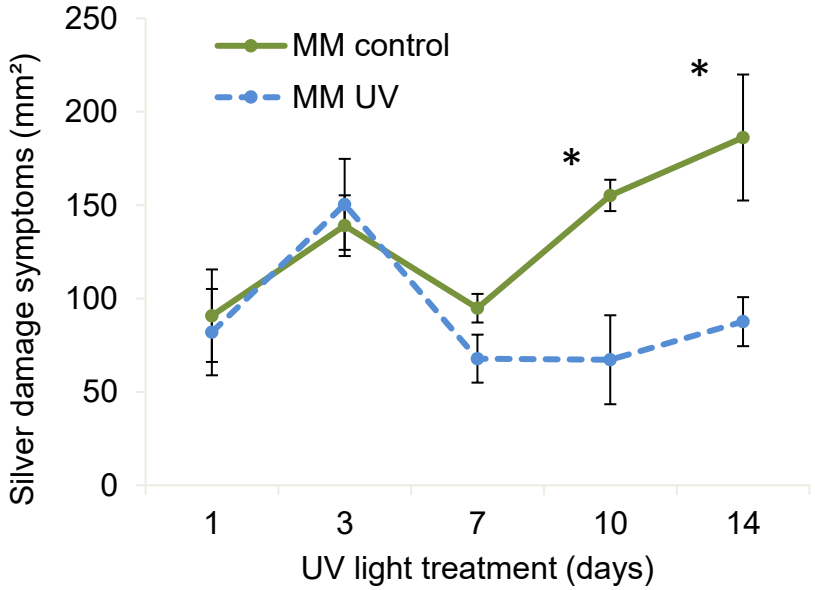


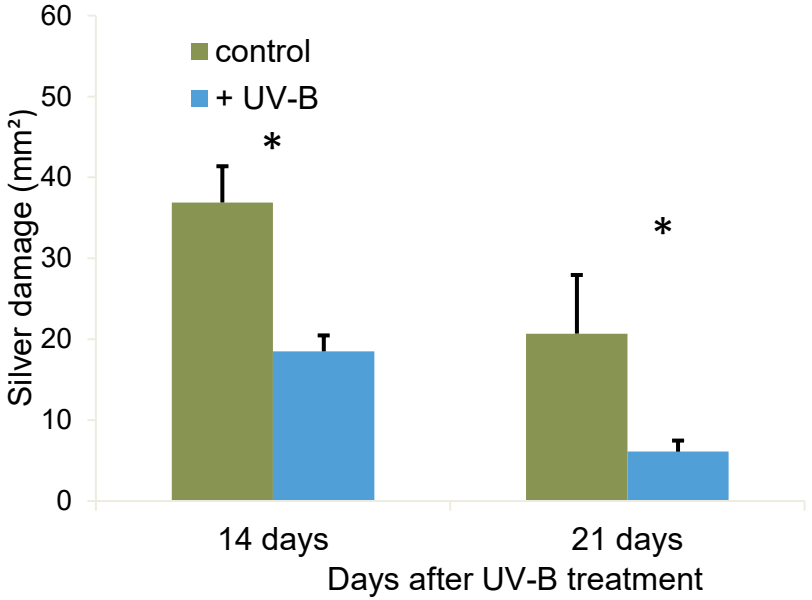


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UV-B



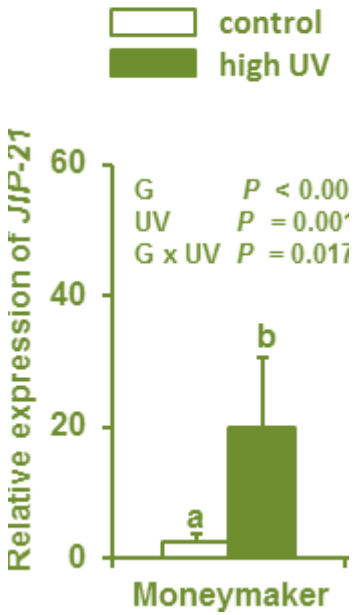








Moneymaker



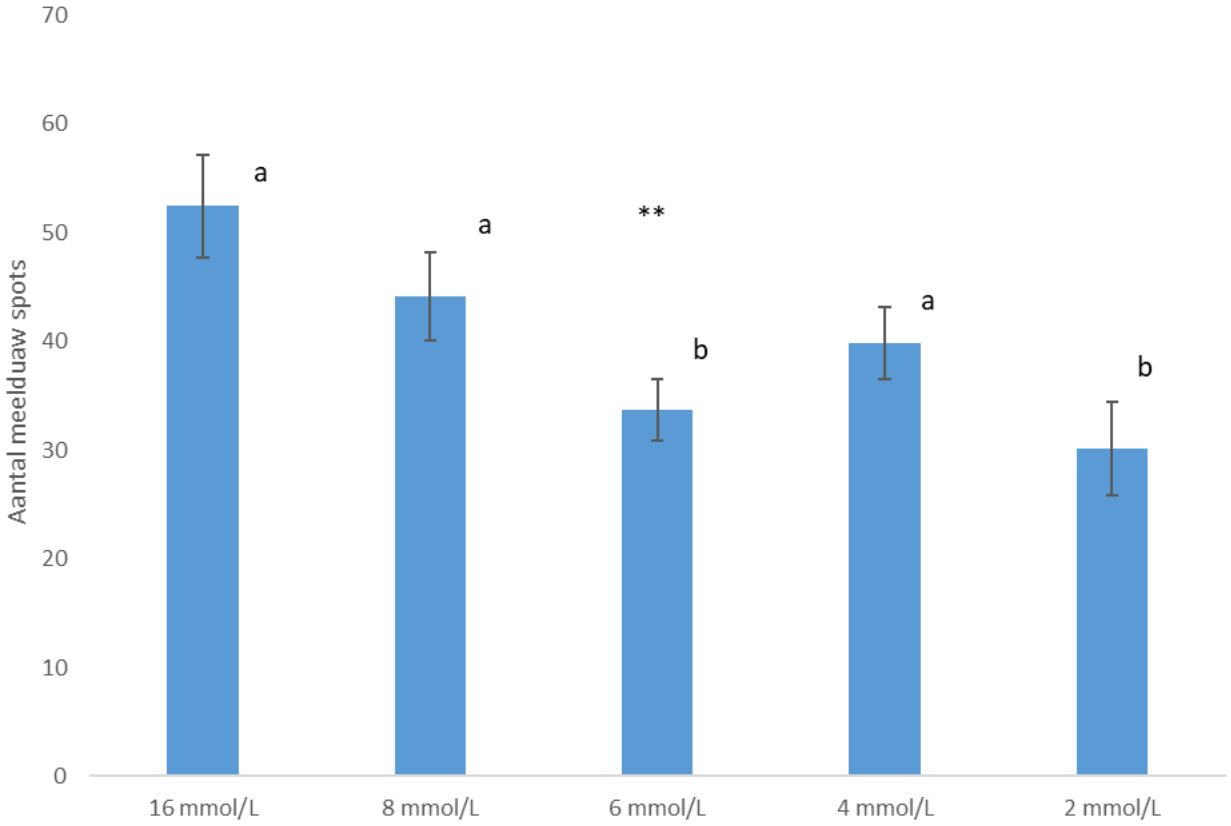
Escobar-Bravo, Klinkhamer, Leiss (2017) Frontiers in Plant Science

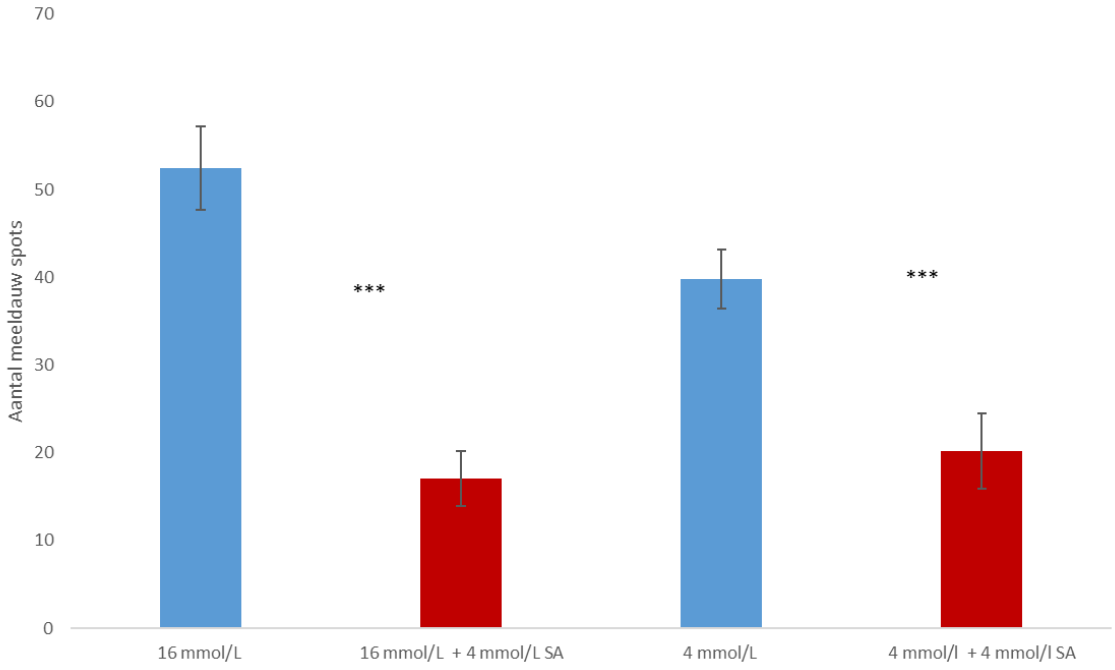
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Nutriënten: Nitraat zomerteelt



Komeet



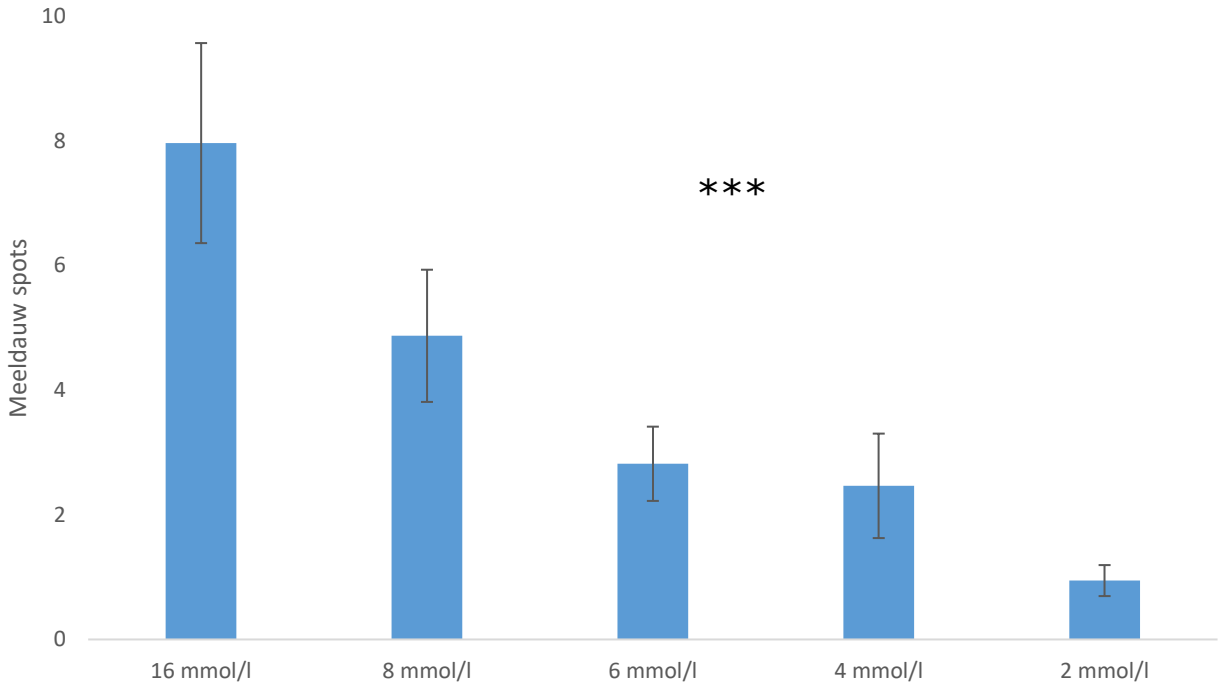


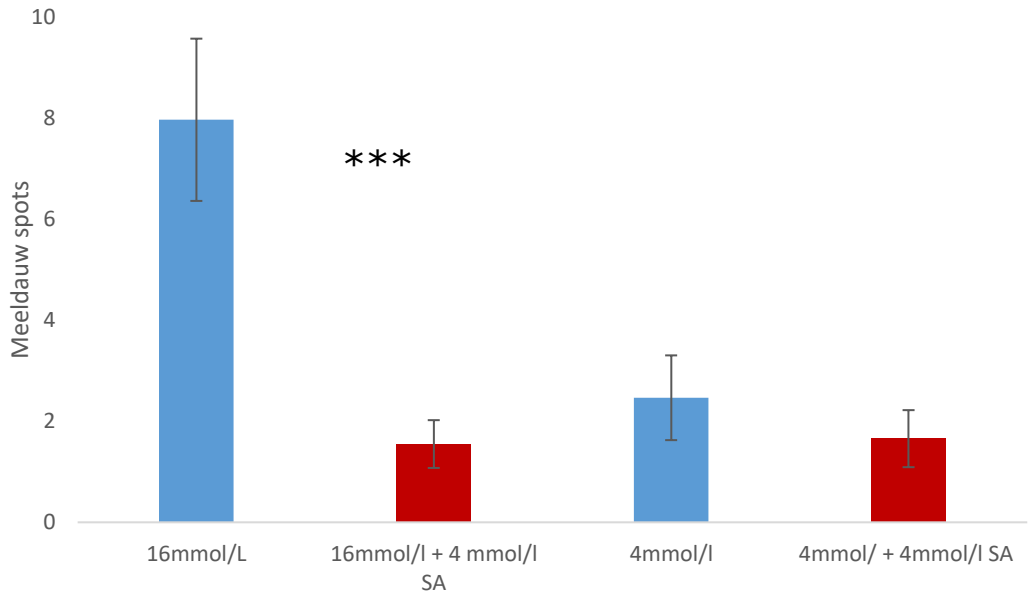
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Nutriënten: Nitraat winterteelt



Komeet



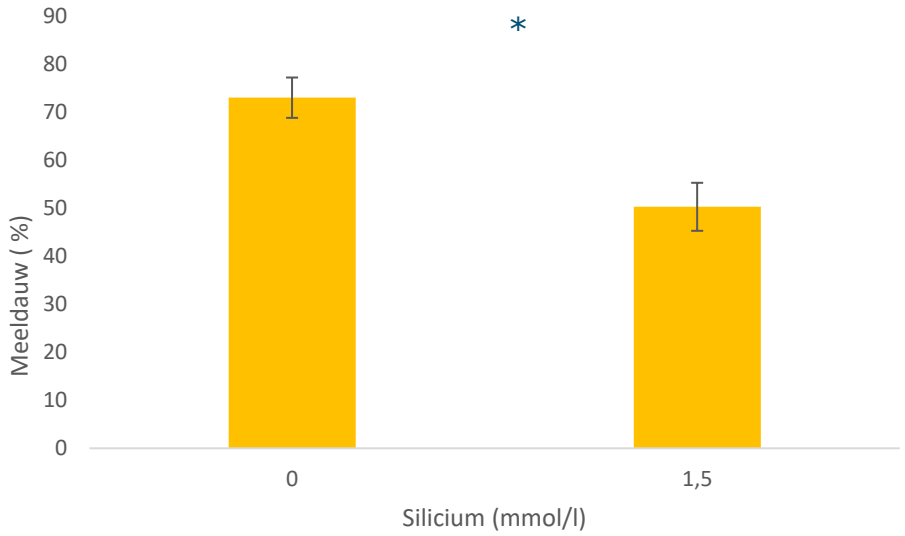


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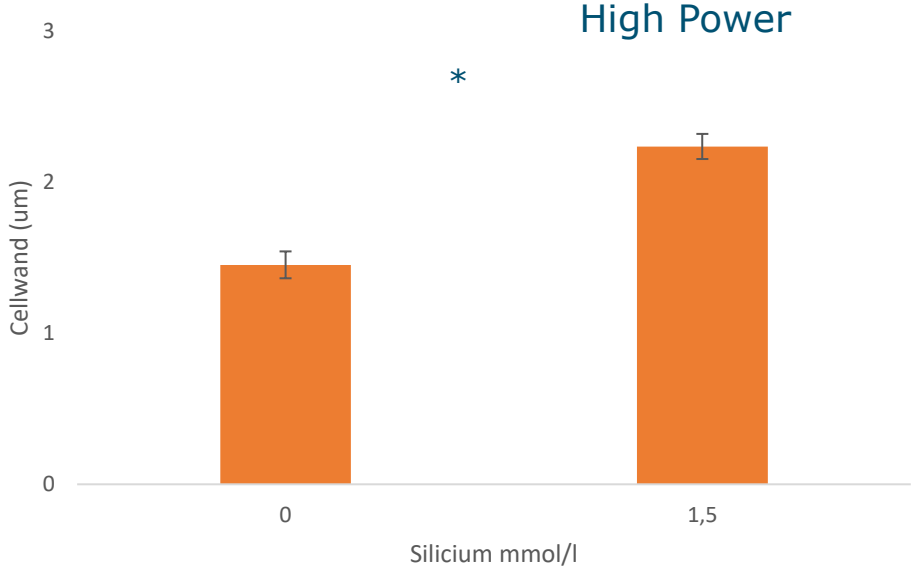
Nutriënten: Silicium

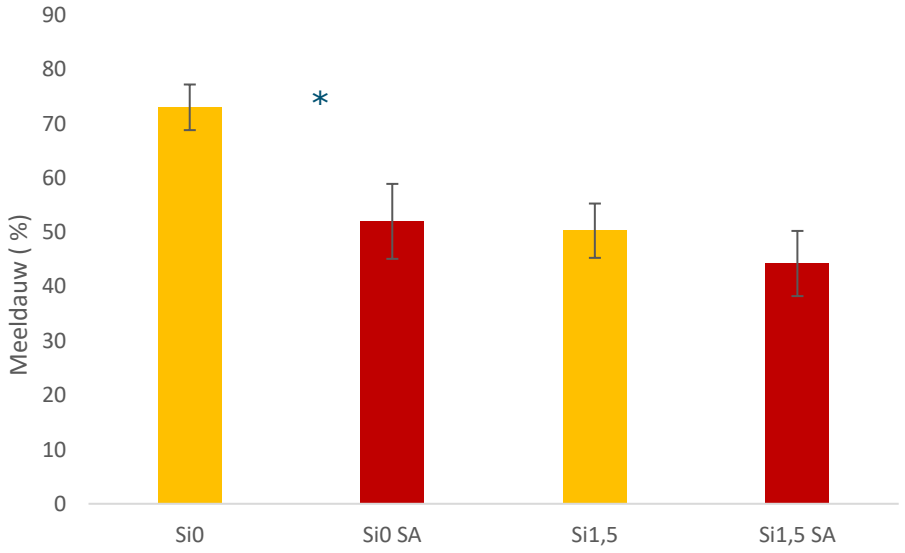






High Power



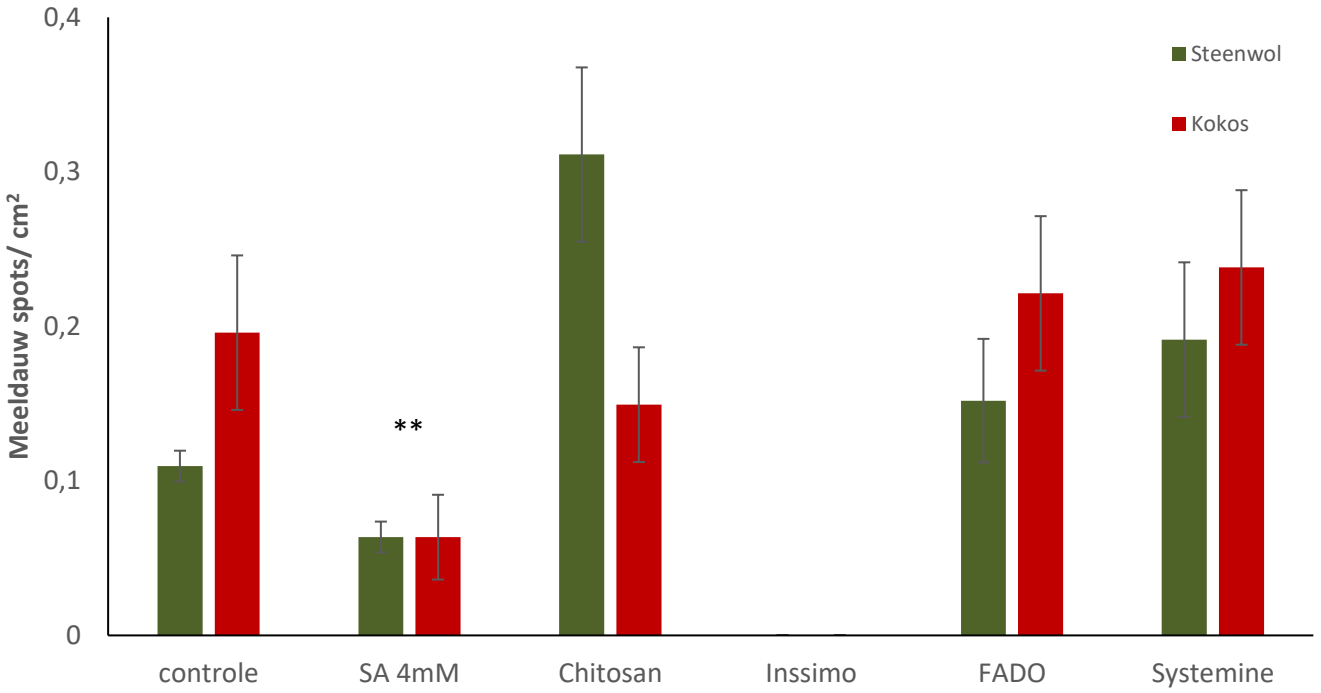


Substraat





Moneymaker



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Weerbaar teeltsysteem aardbei



















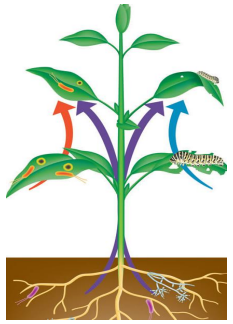




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Meten Plantweerbaarheid





- Geen directe, real-time meet-methodiek voor de praktijk

- Meting nu indirect met tussenkomst van een labor:

  - Bio-toesten
  - Concentratie plant hormonen/enzymen/proteinen
  - Concentratie planteninhoudsstoffen
  - Genexpressie

Elektrofysiologie

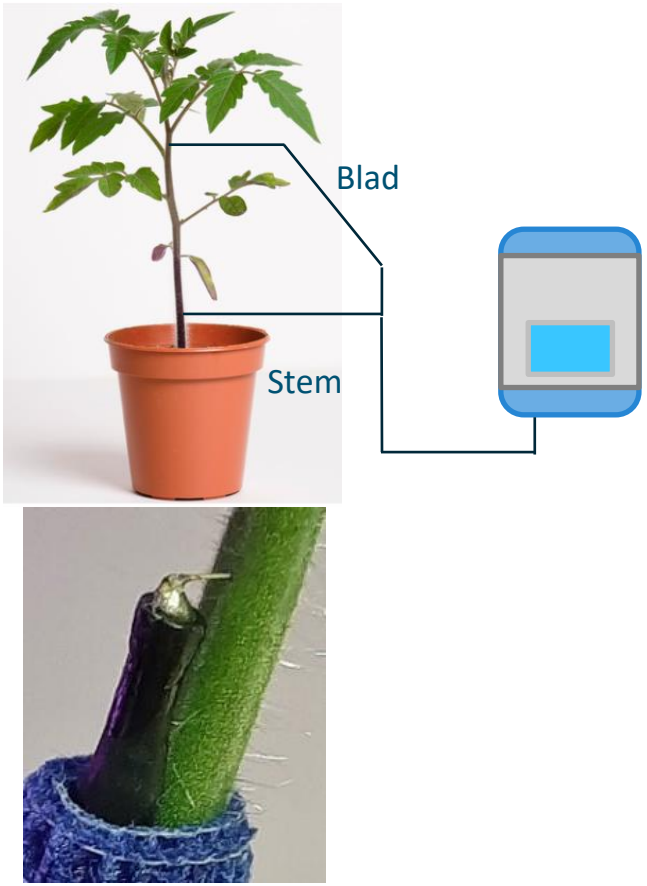


PNAS, 2018, 115 (40) 10178-10183

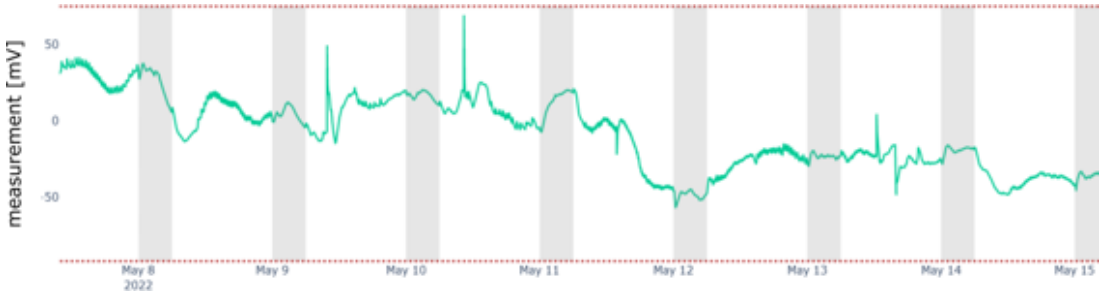
Electrophysiologische sensoren



Vivent



Bio-electrische signalen



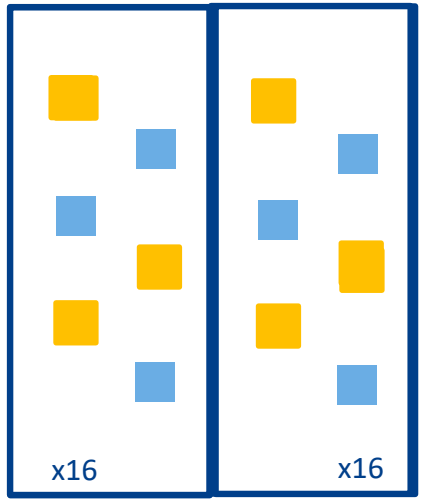
Analyse signalen door machine learning

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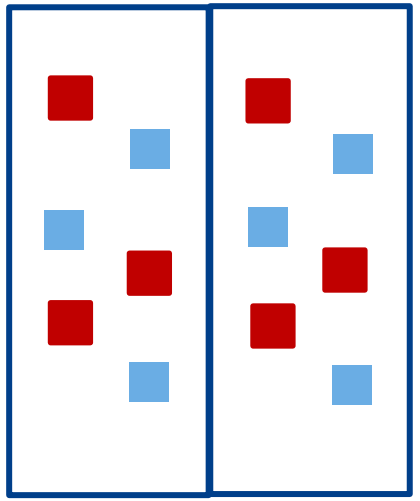
Detectie plantweerbaarheid experimenten











Controle Jasmonzuur

Controle Salicylzuur

Maatwerk

- Preventief



- Generieke concepten; variabele uitkomsten



- Inpassen in IPM, CPM



Dank



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GLASTUINBOUW
CLUB VAN 100
LEADING IN HORTICULTURAL INNOVATION

TOPSECTOR
TUINBOUW & UITGANGSMATERIALEN

Ministerie van Landbouw,
Natuur en Voedselkwaliteit