

Big data in Controlled Environment Agriculture for improving the nutritional factors of the plants

Rares C. Nistor, PhD

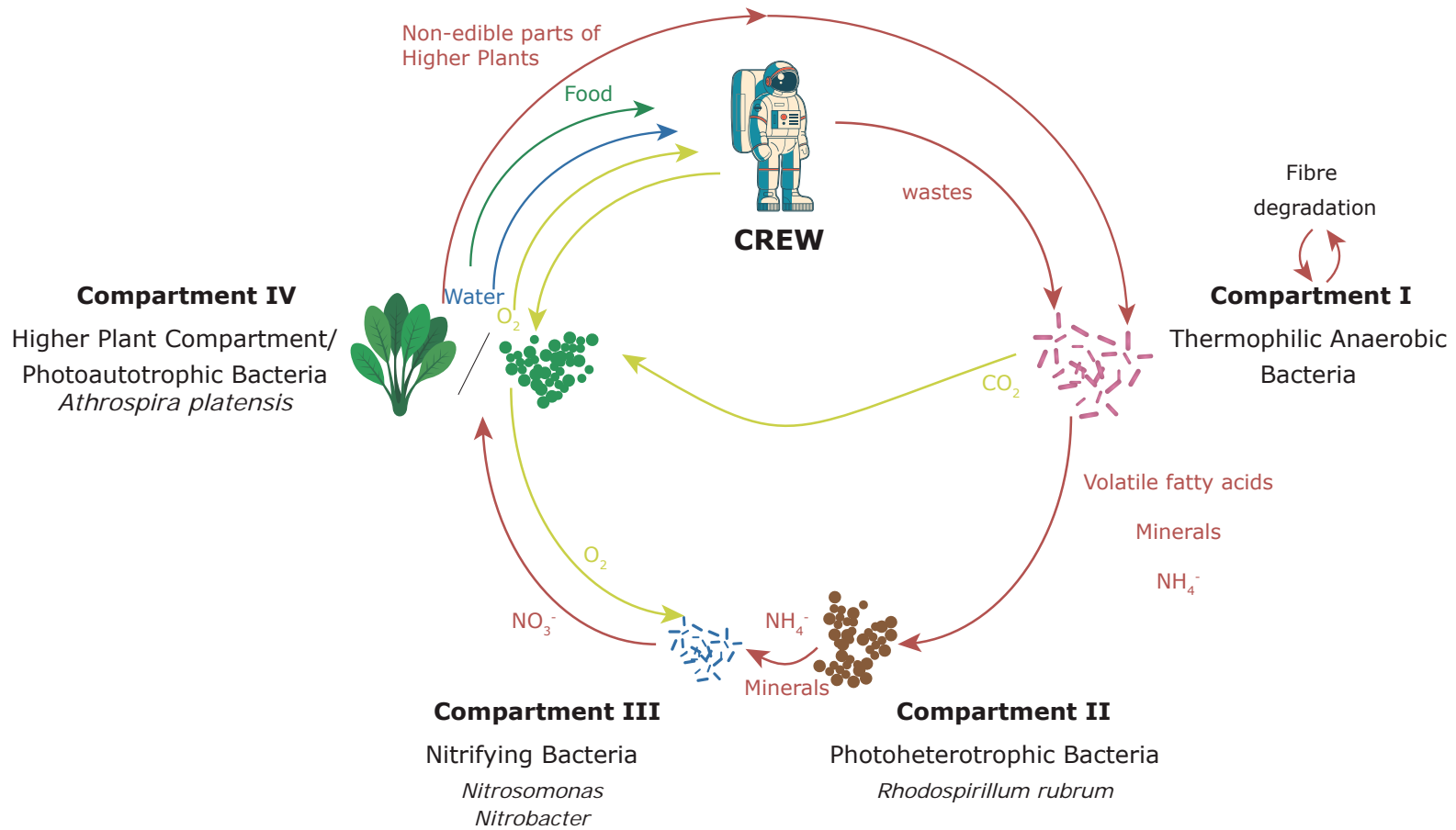
MELiSSA Worksop, Rome, 2018

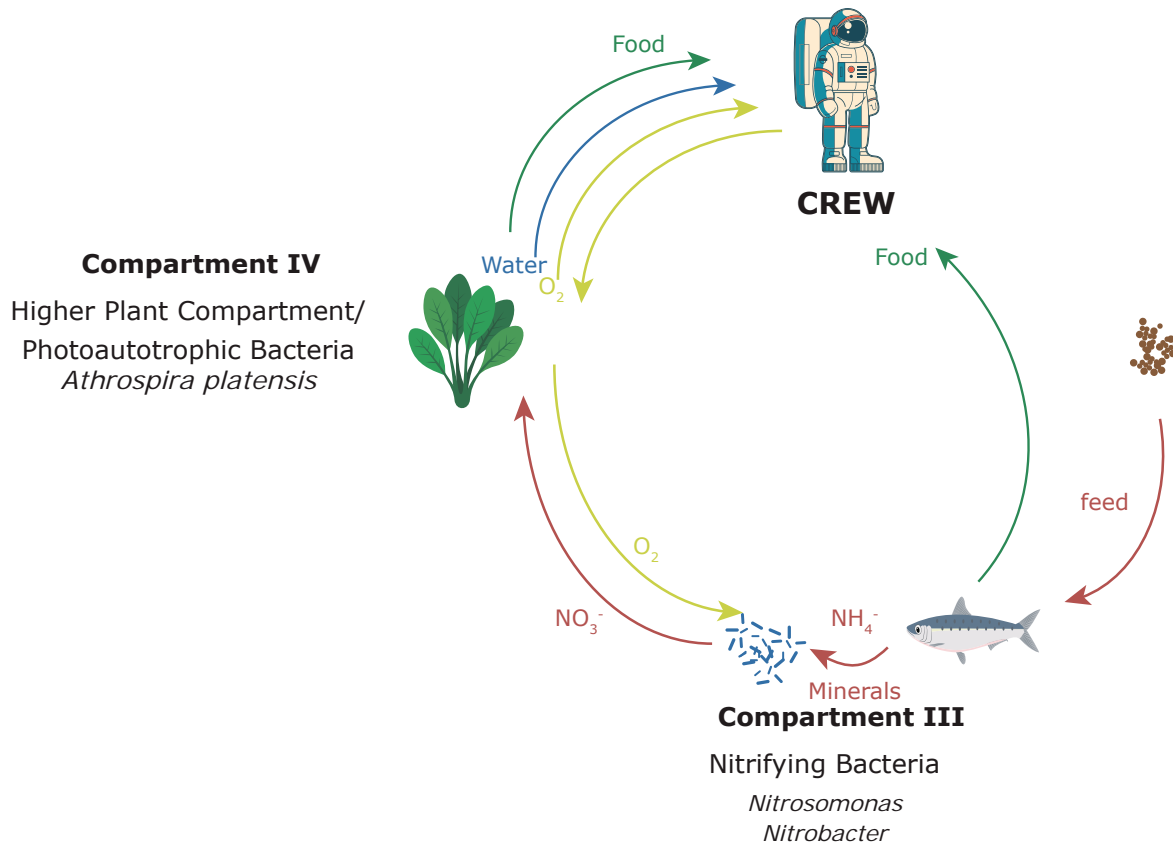
PLNT
GEEK



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University of Applied Sciences

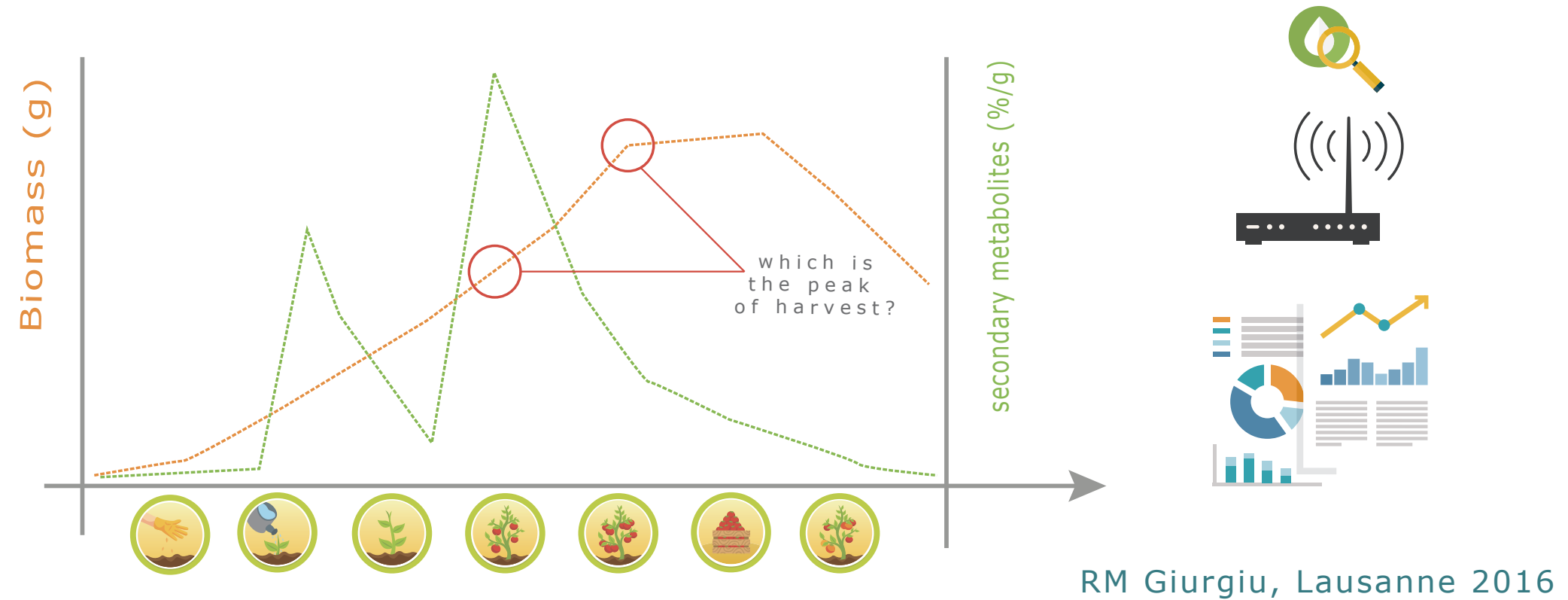




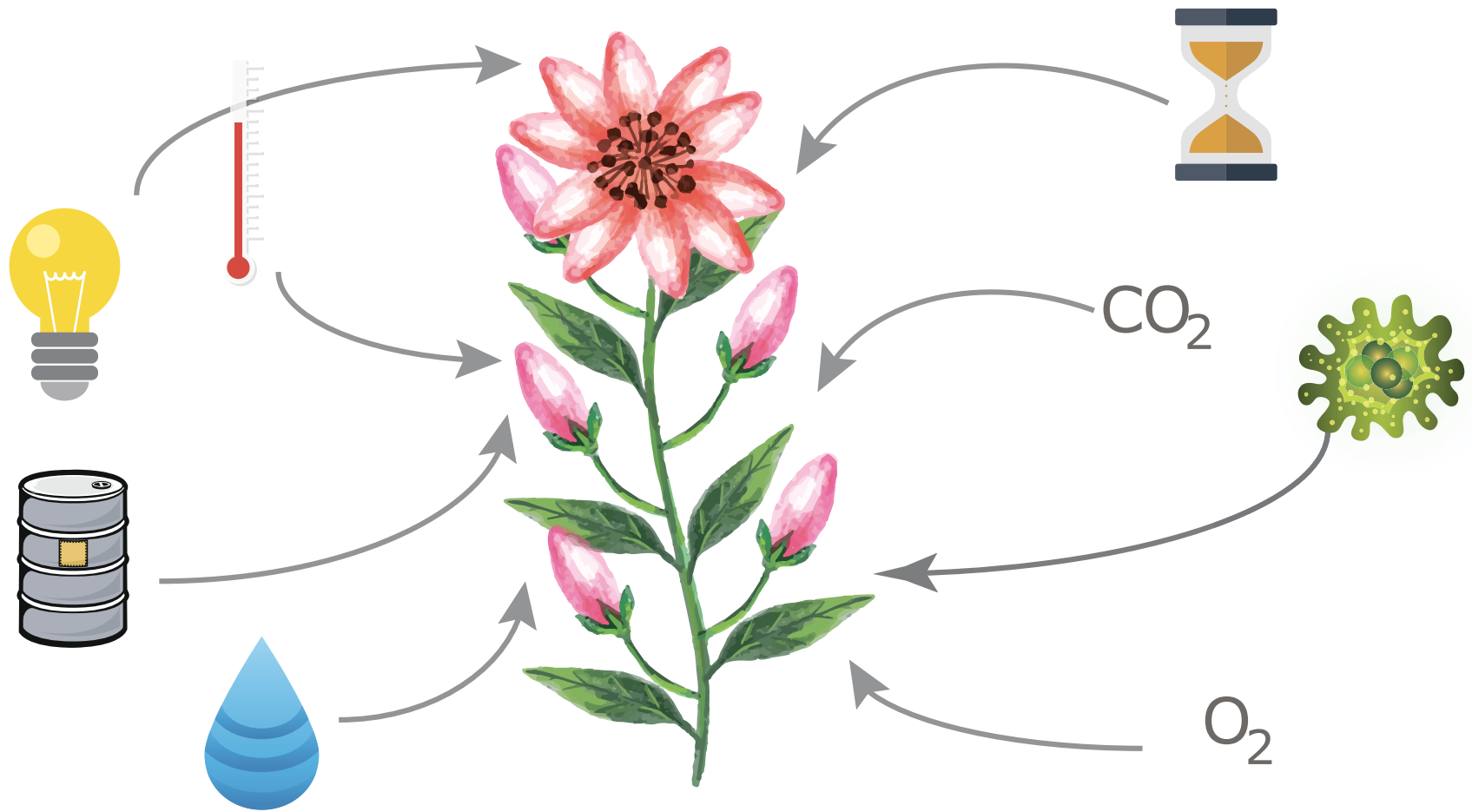


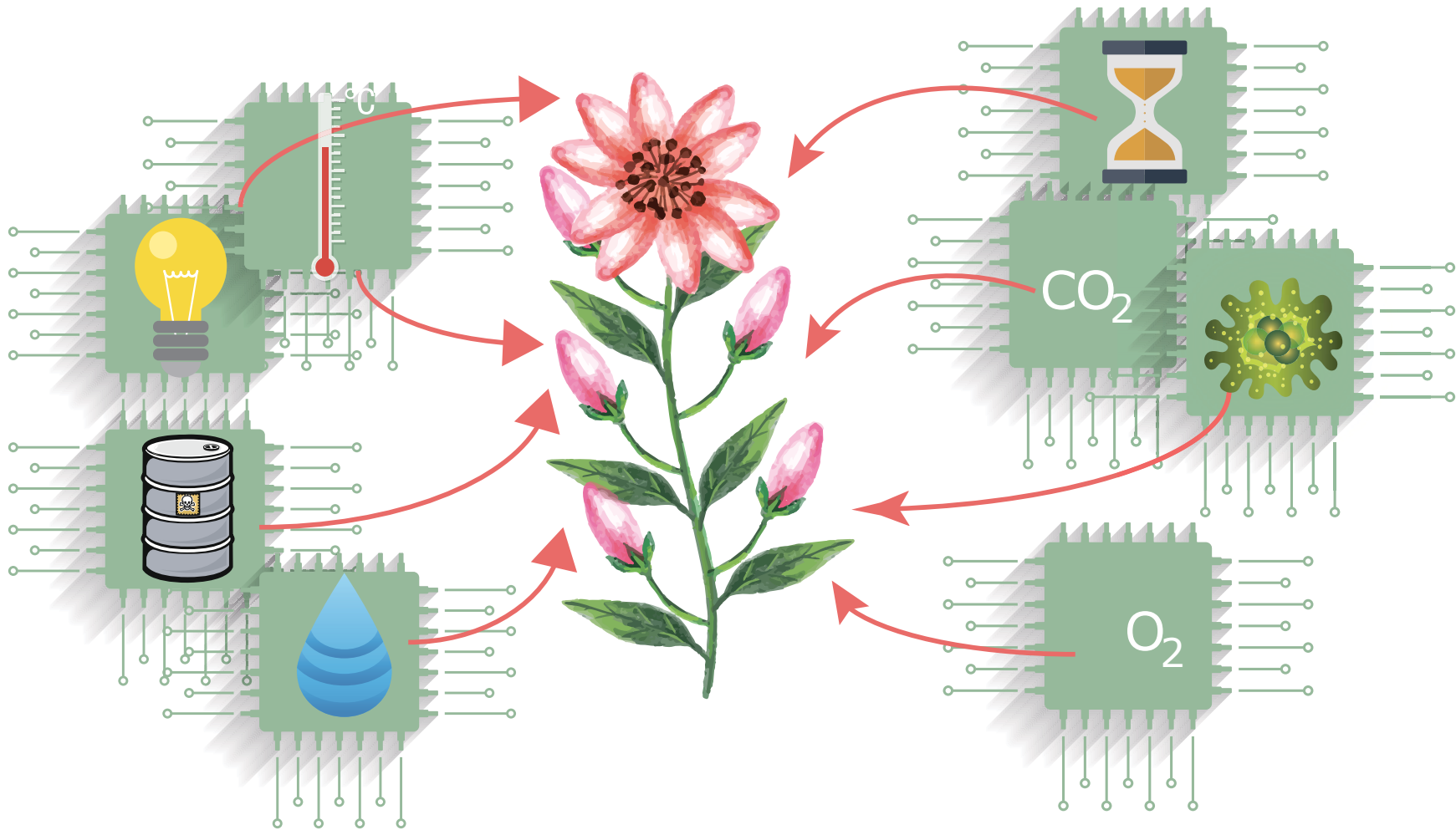


Quantity and Quality of plants



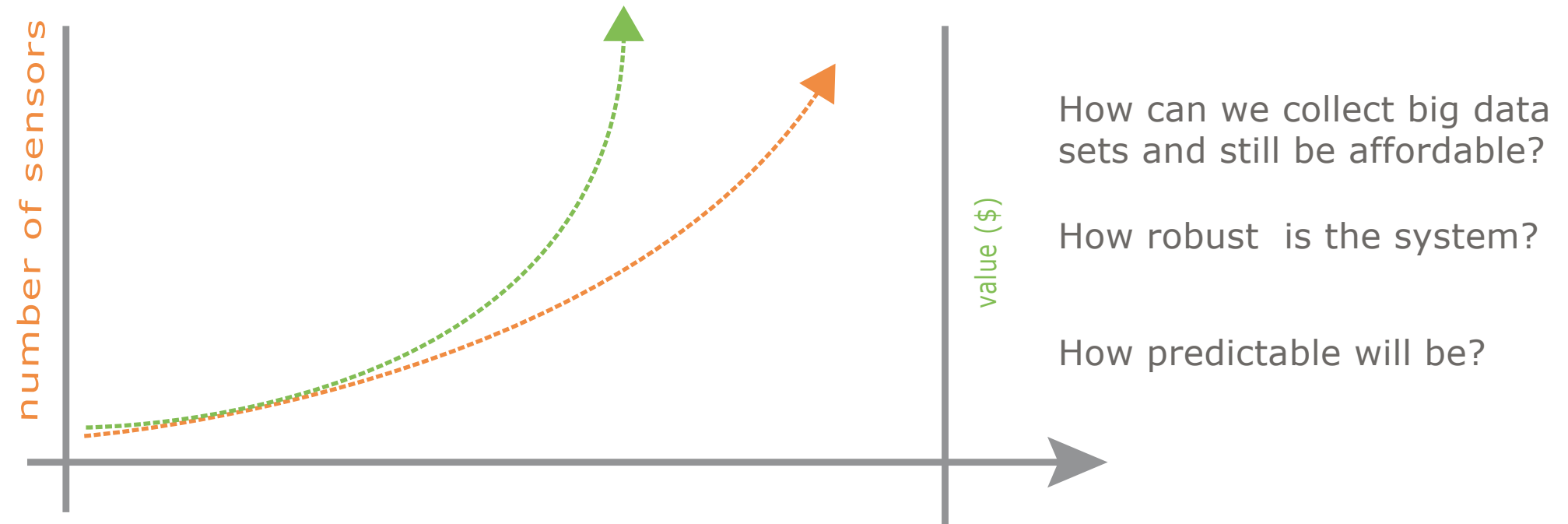


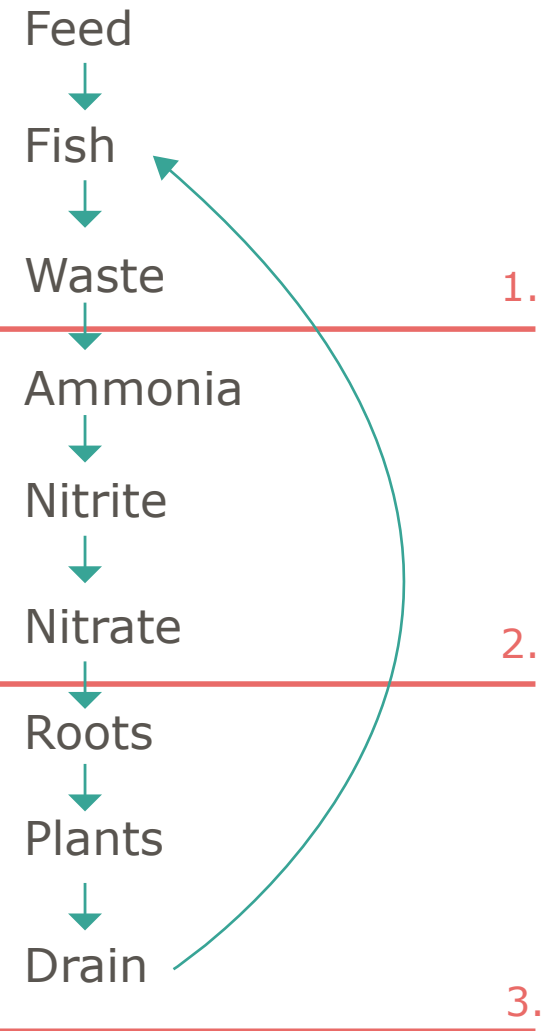
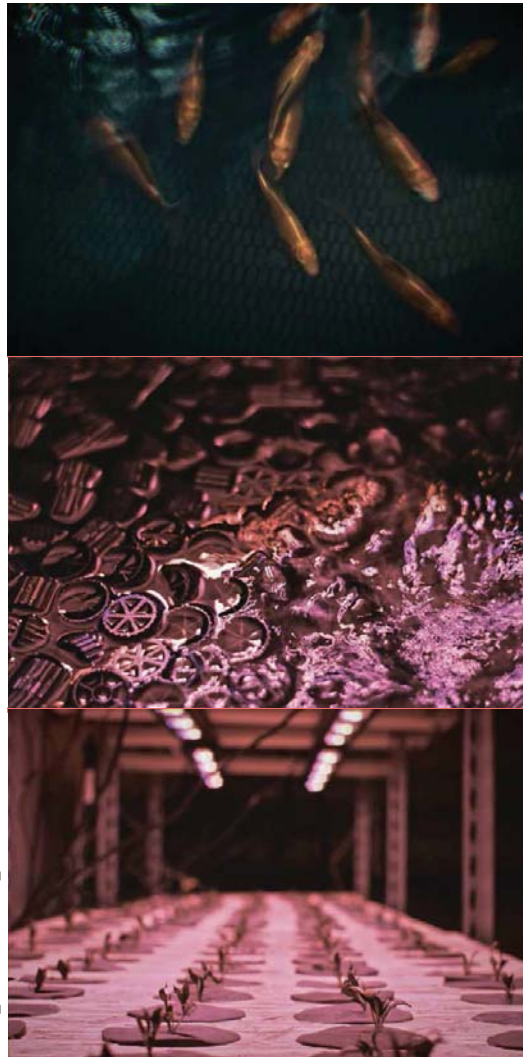
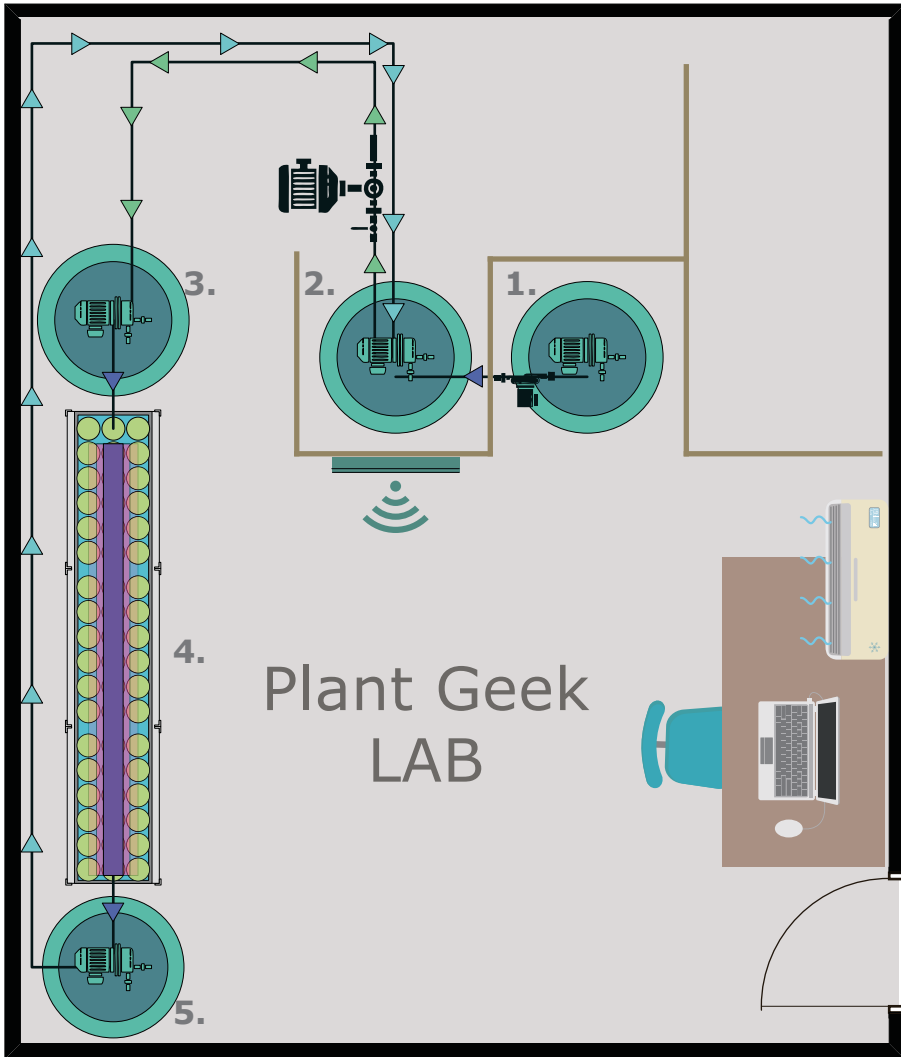






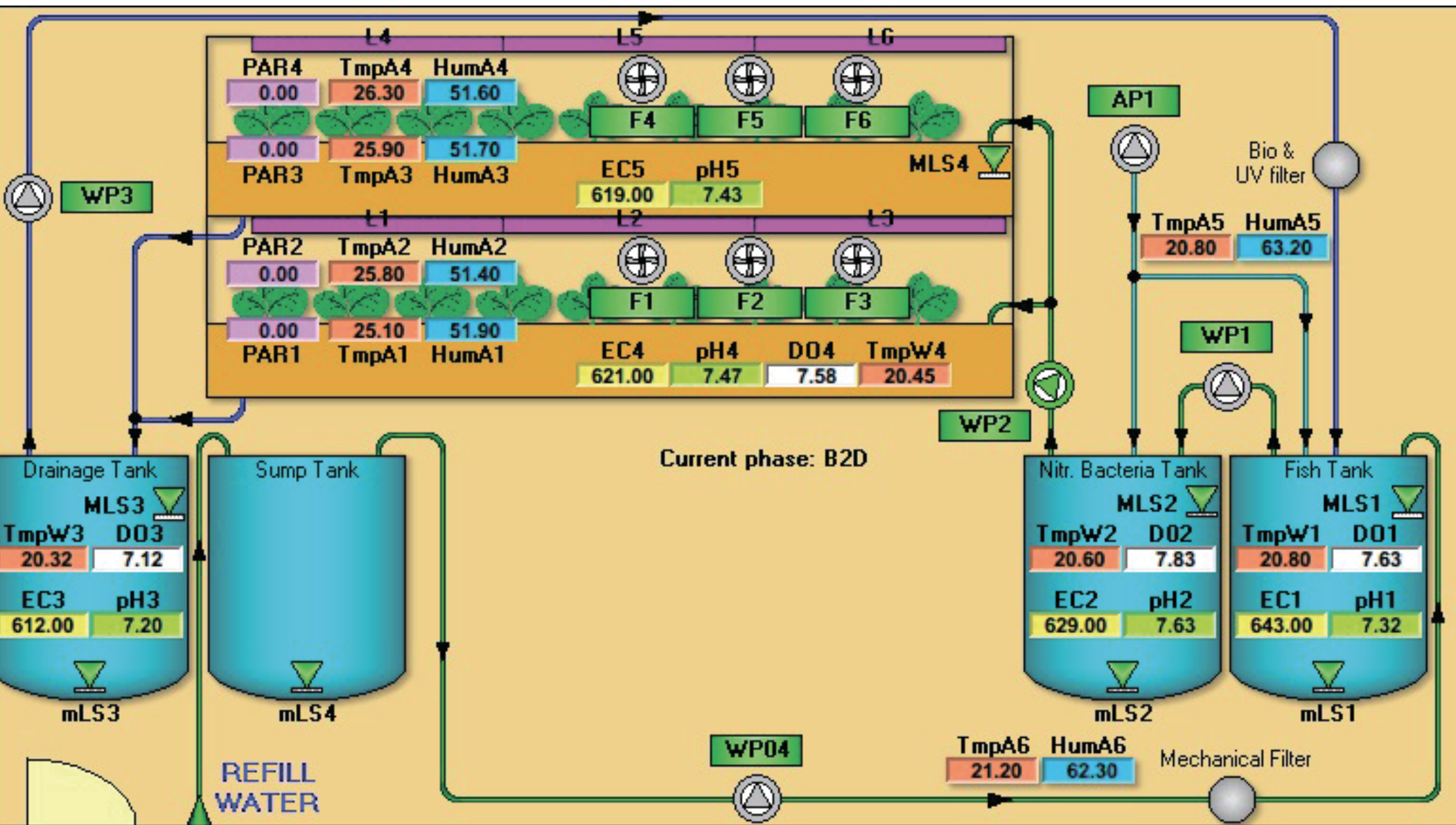
Number of sensors/ price







- pH
- electrical conductivity
- nutrient solution temperature
- dissolved oxygen
- PAR
- temperature
- humidity
- IR CAM
- Raspberry Pi
- Arduino

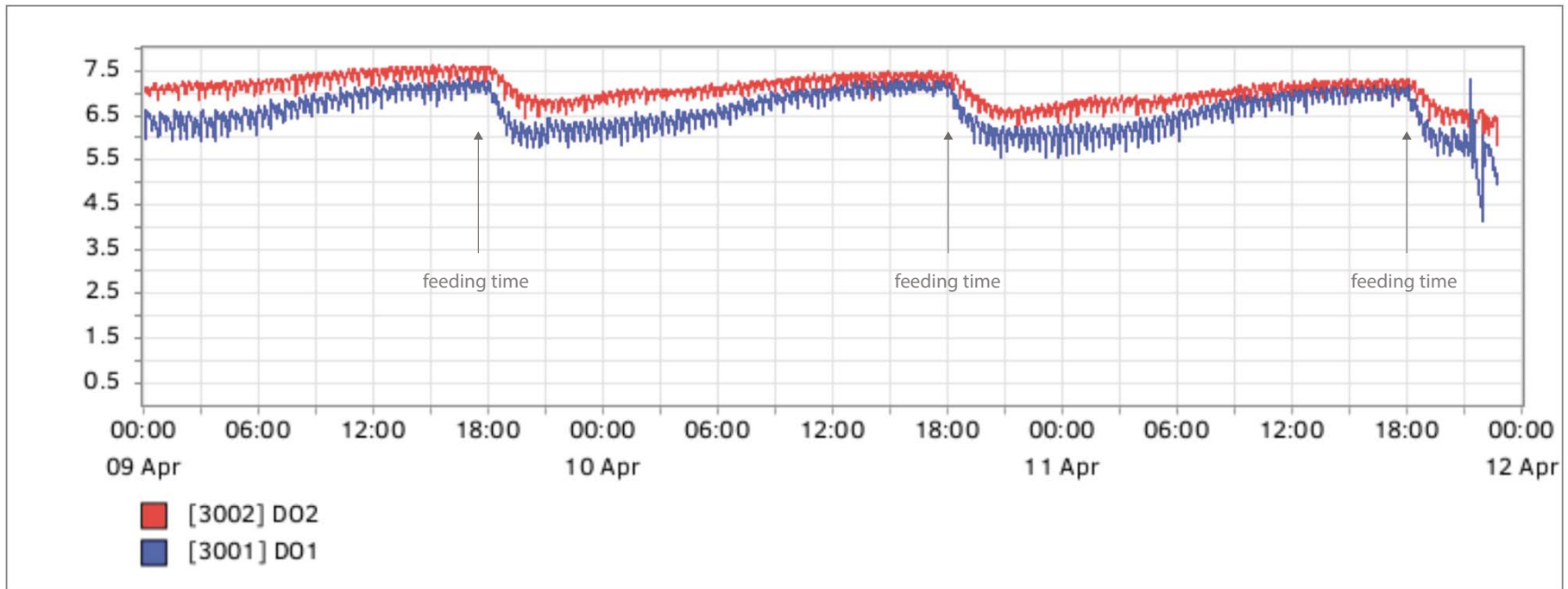




Real time data and monitoring:

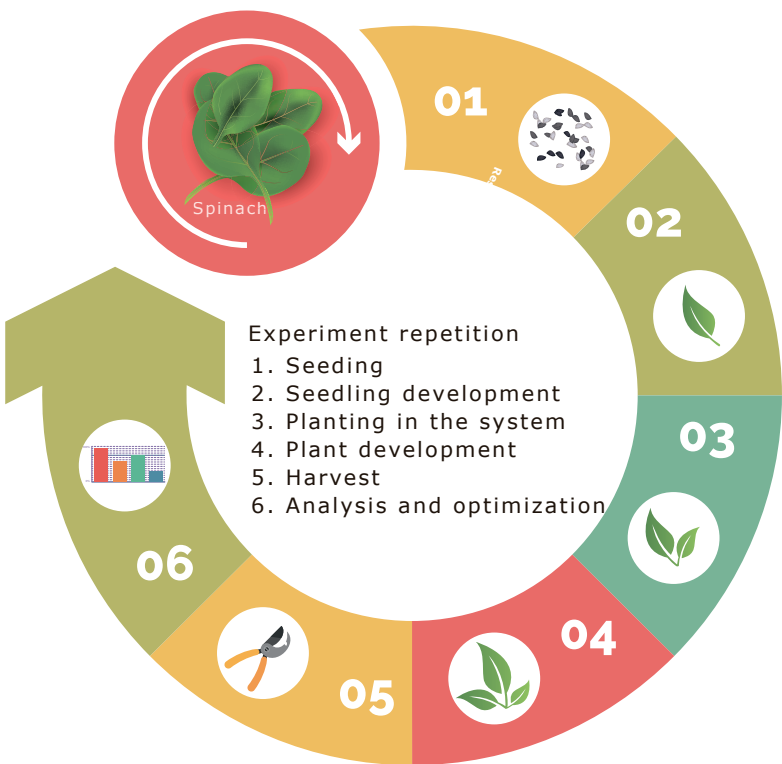
☰ Aquaponic System, 09/04/2018 - 11/04/2018

Generated 11/04/2018 22:43:15





Method:



Plant measurements



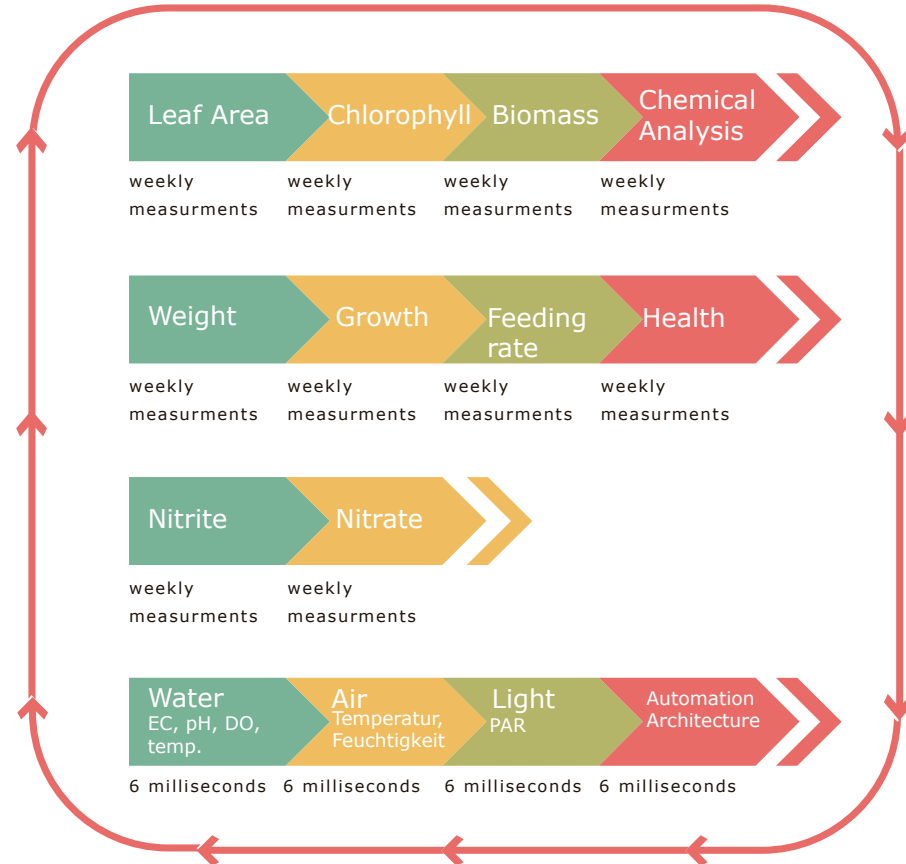
Fish measurements



Nutrient solution measurements

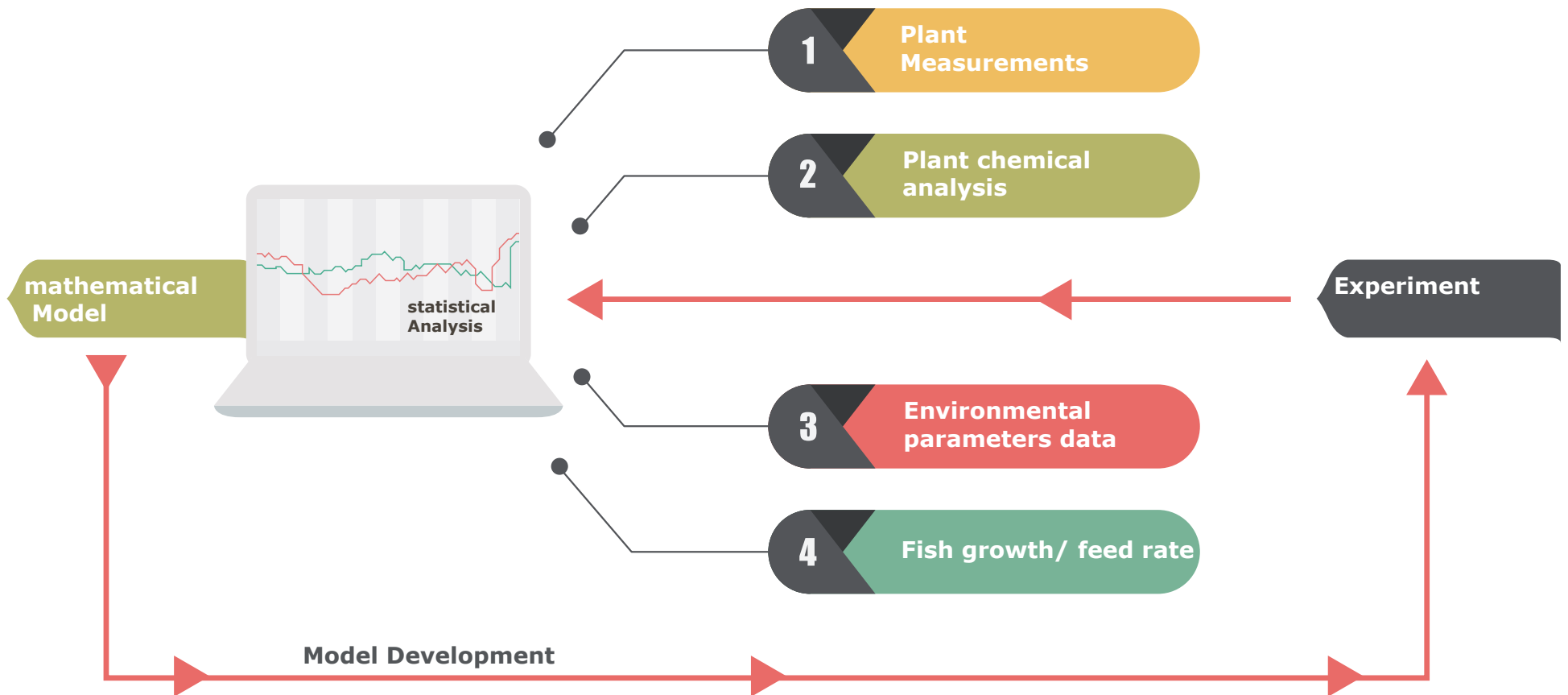


Environmental parameters



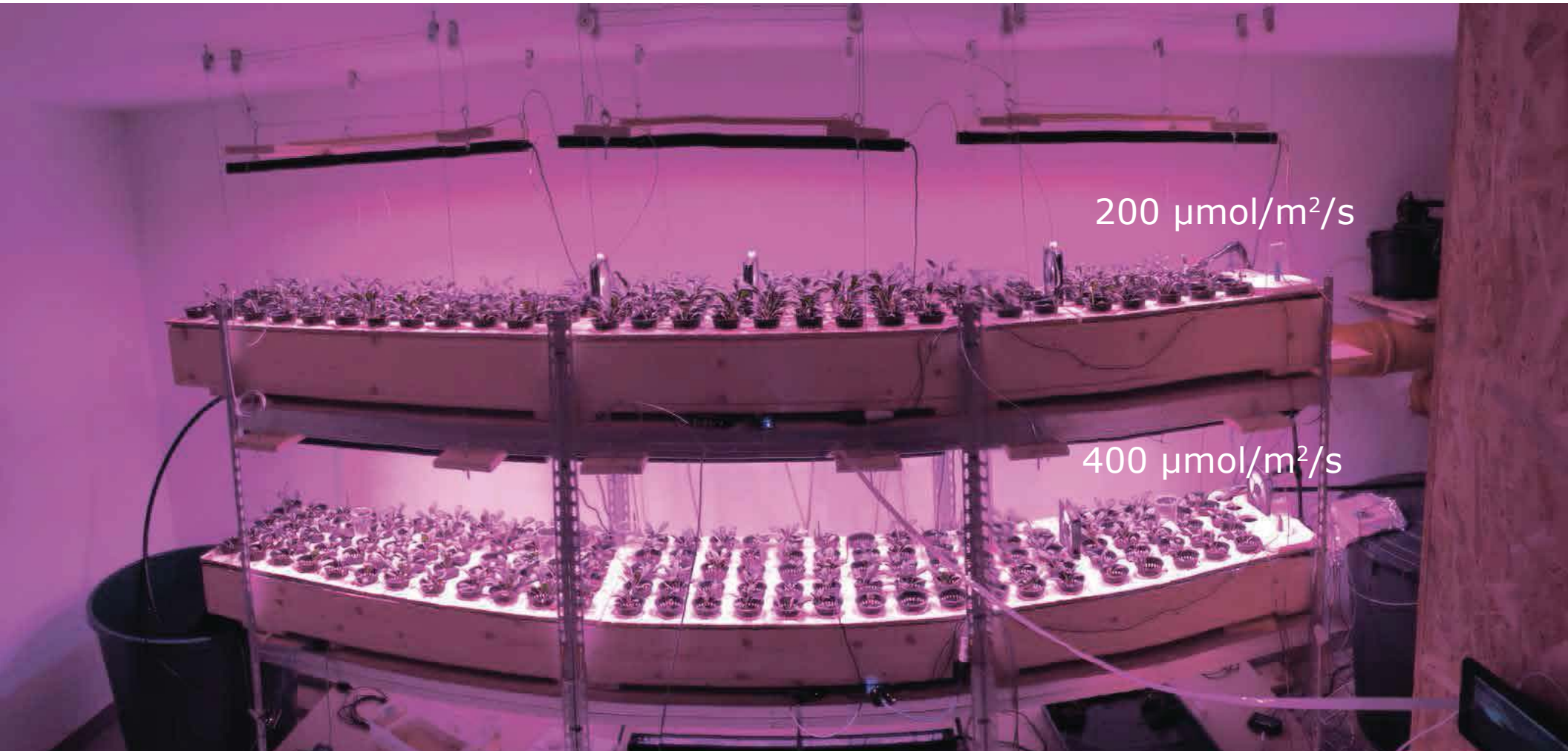


Mathematical modelling:



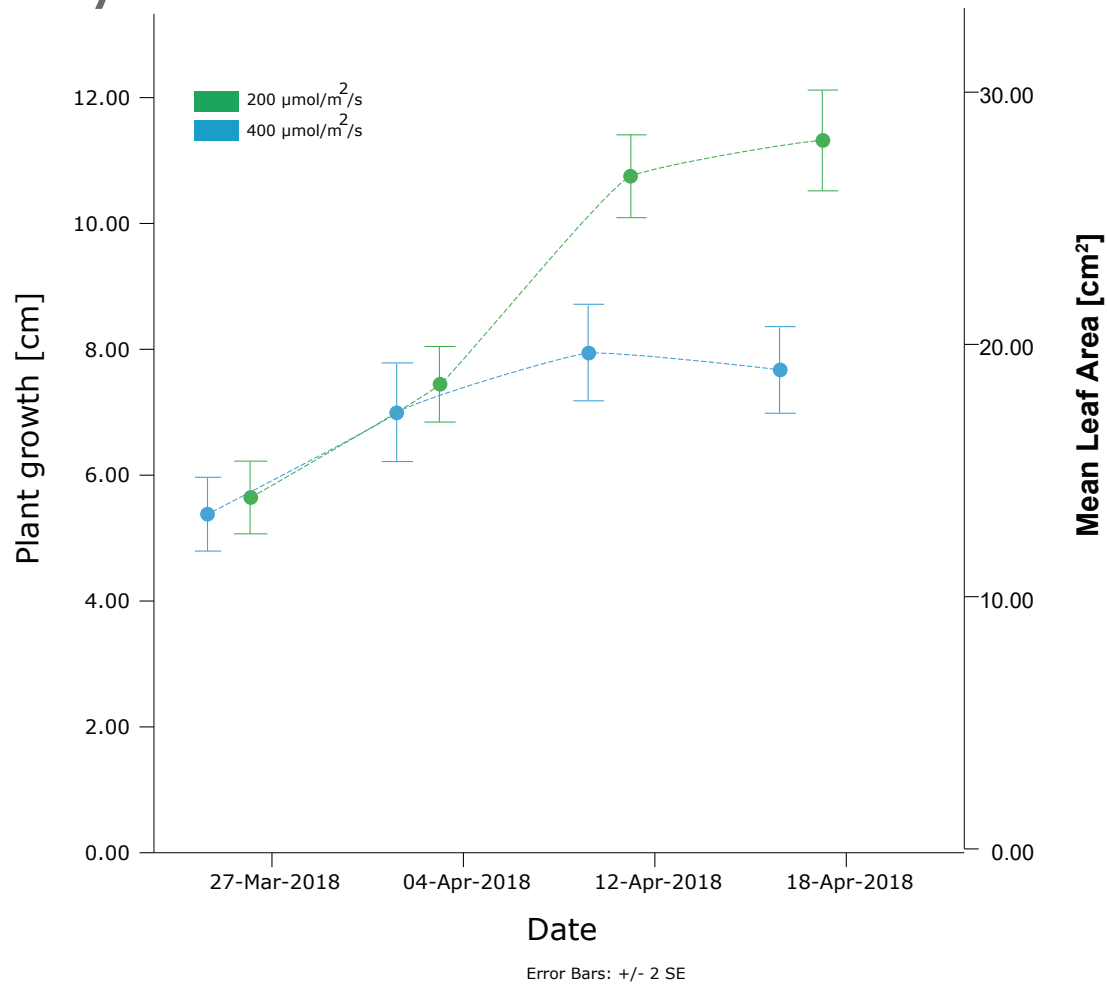


Different light intensities experiment:



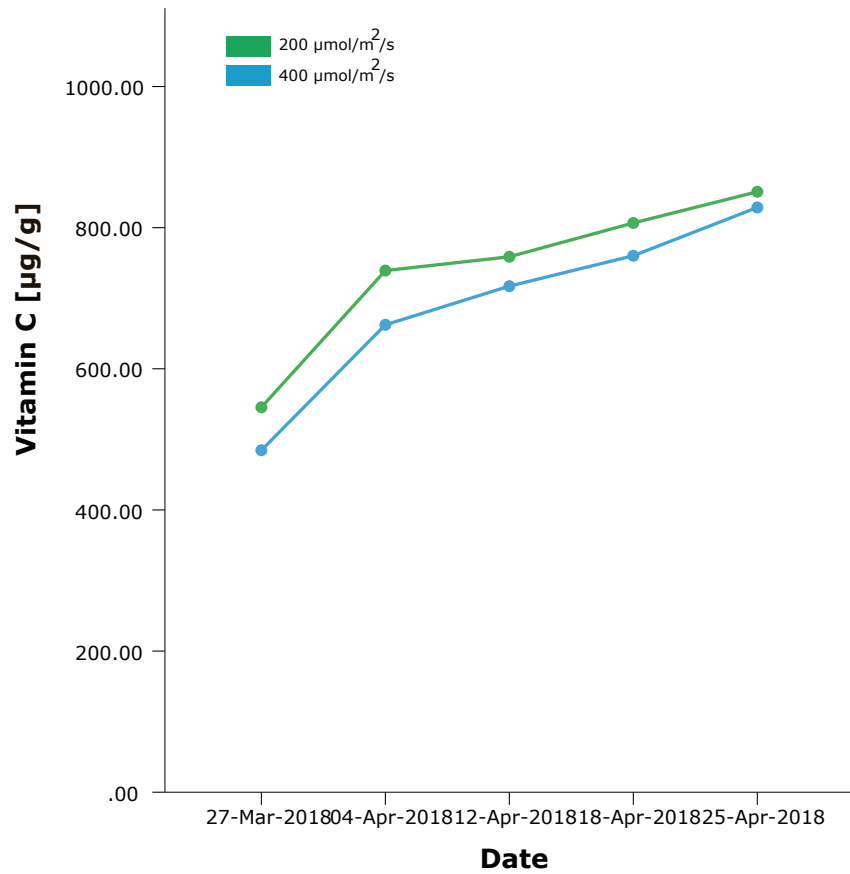


Preliminary results:



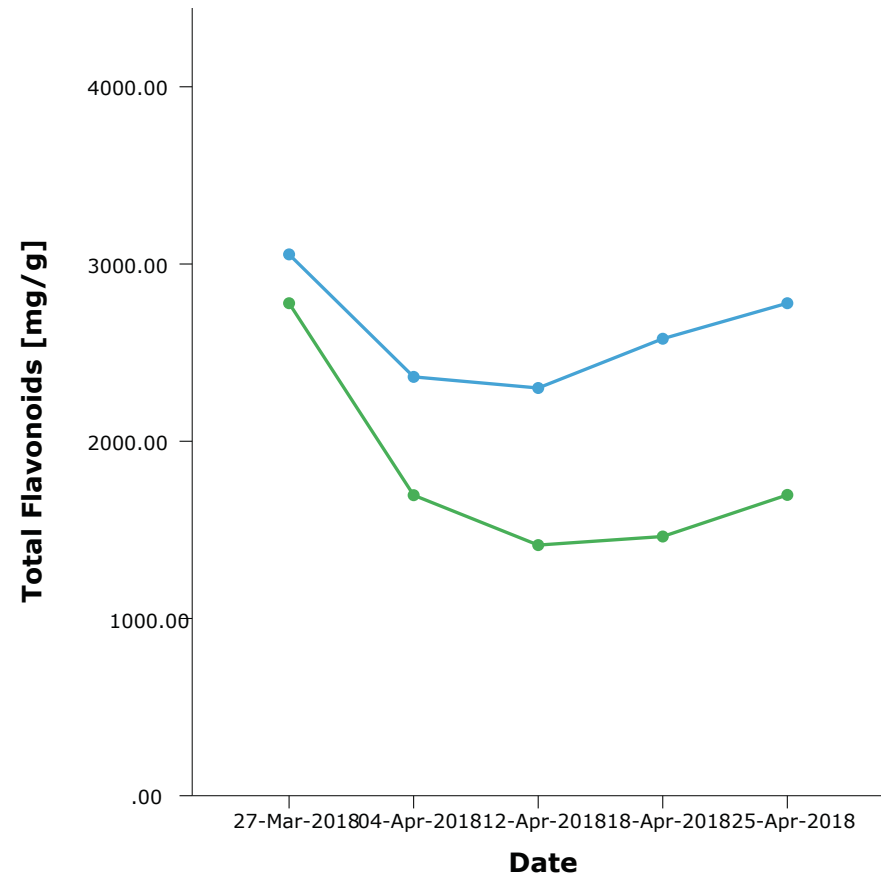
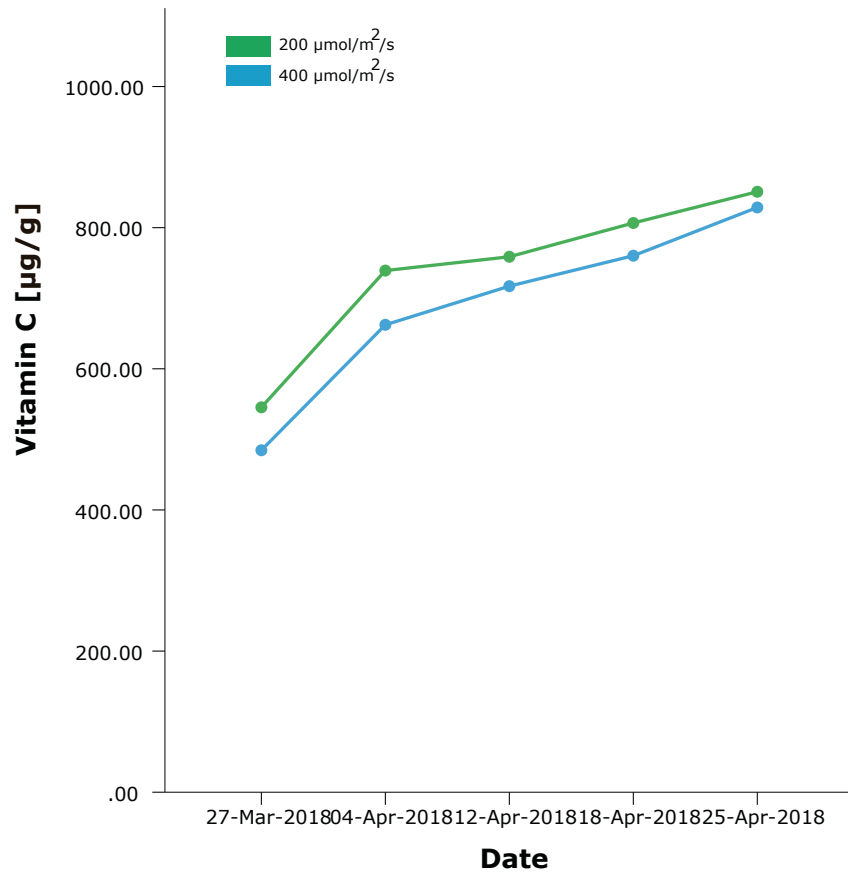


Preliminary results:



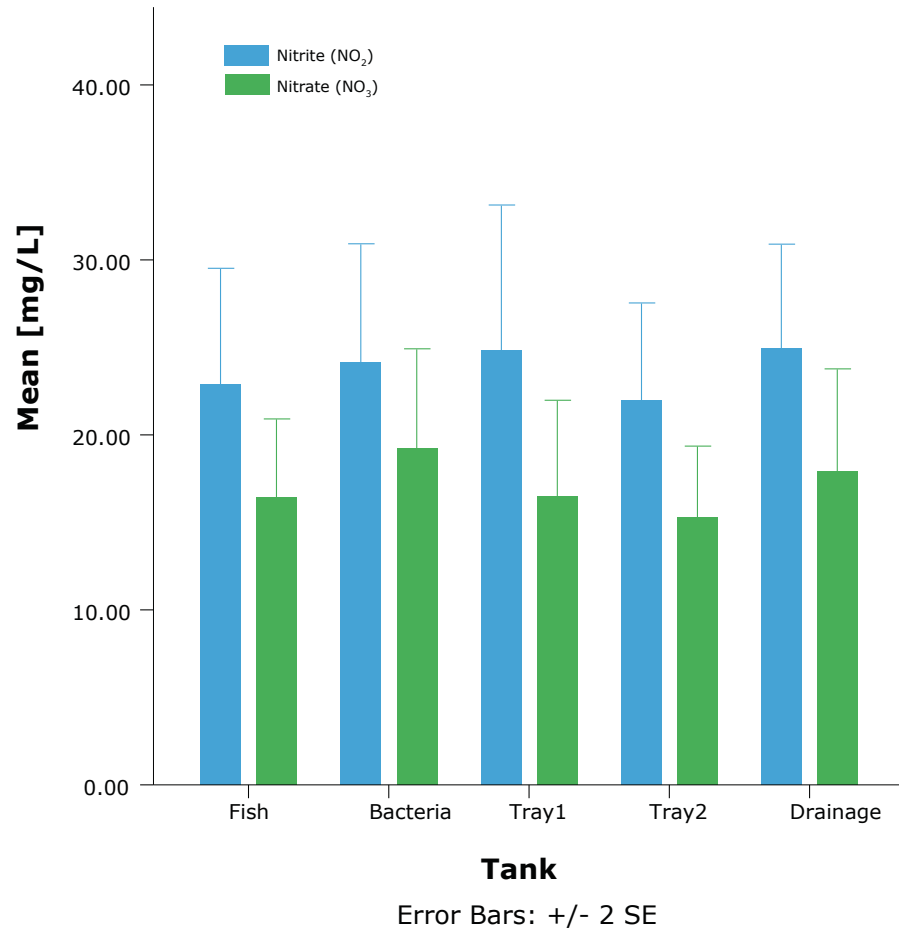


Preliminary results:



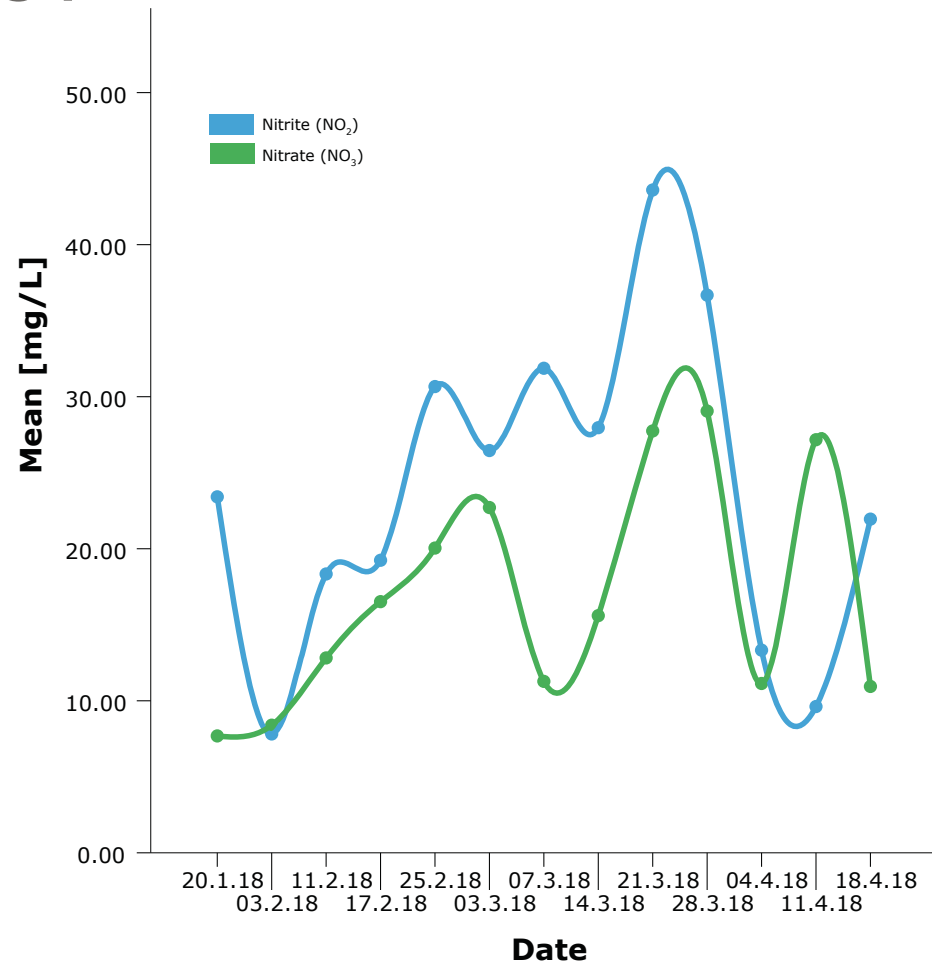
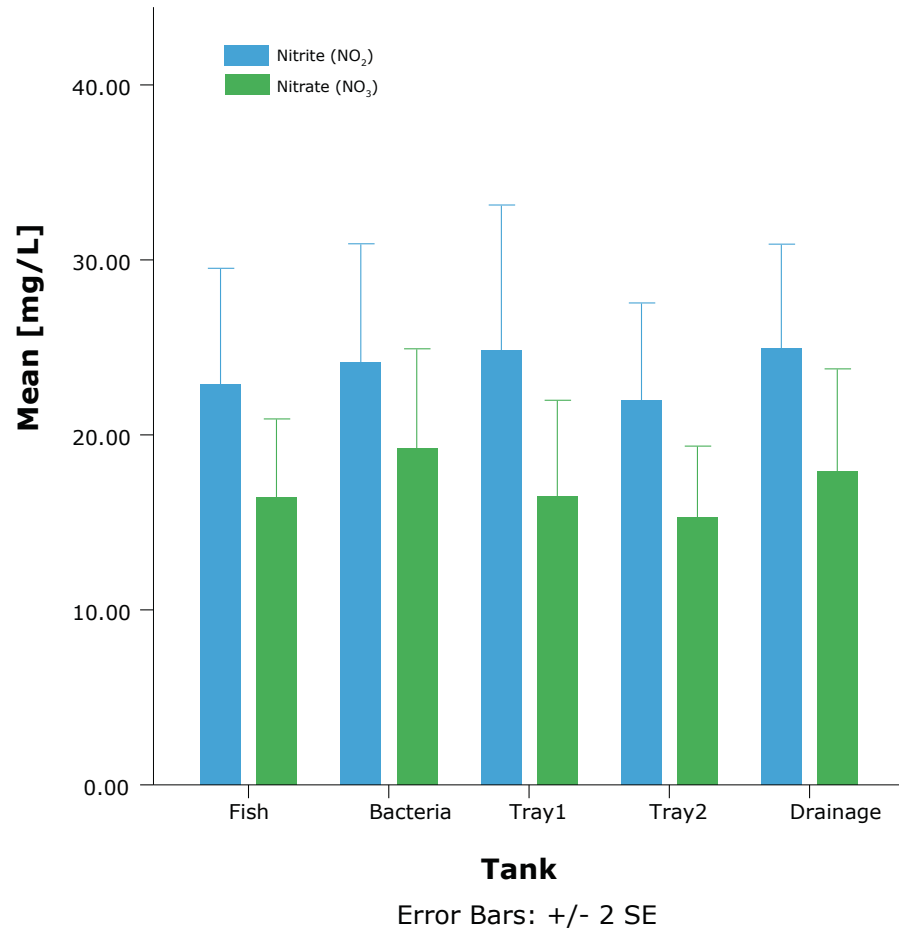


Preliminary results:



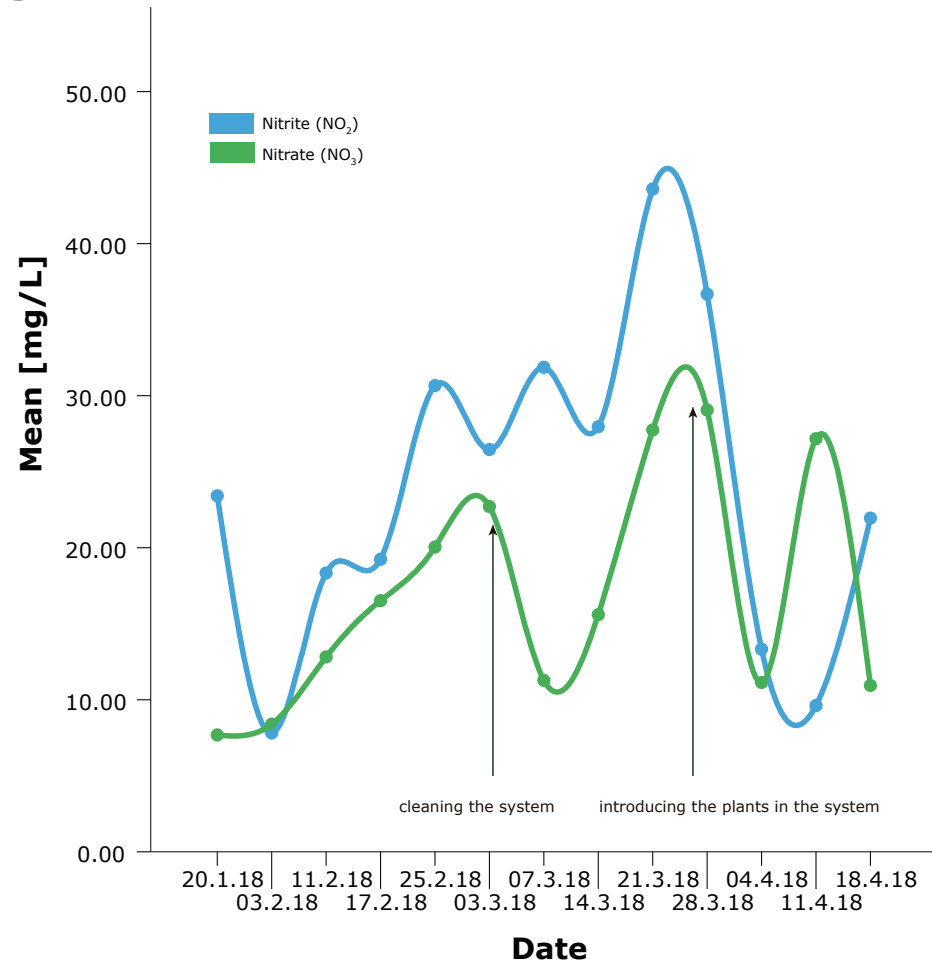
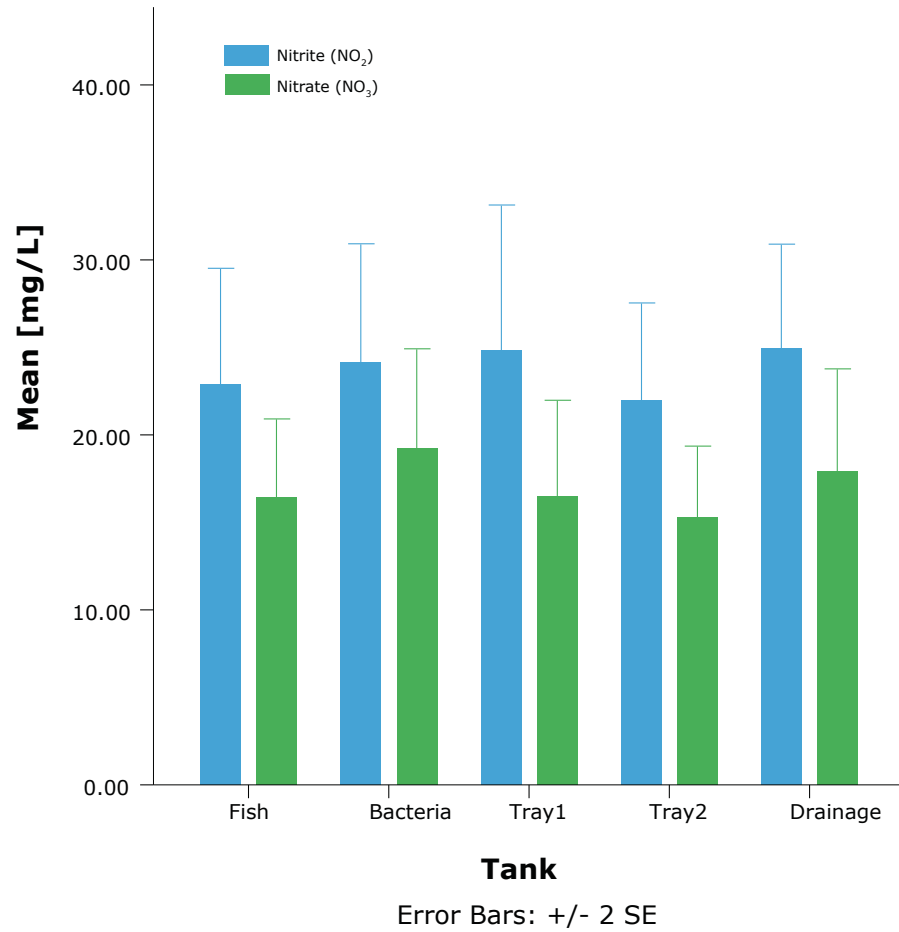


Preliminary results:



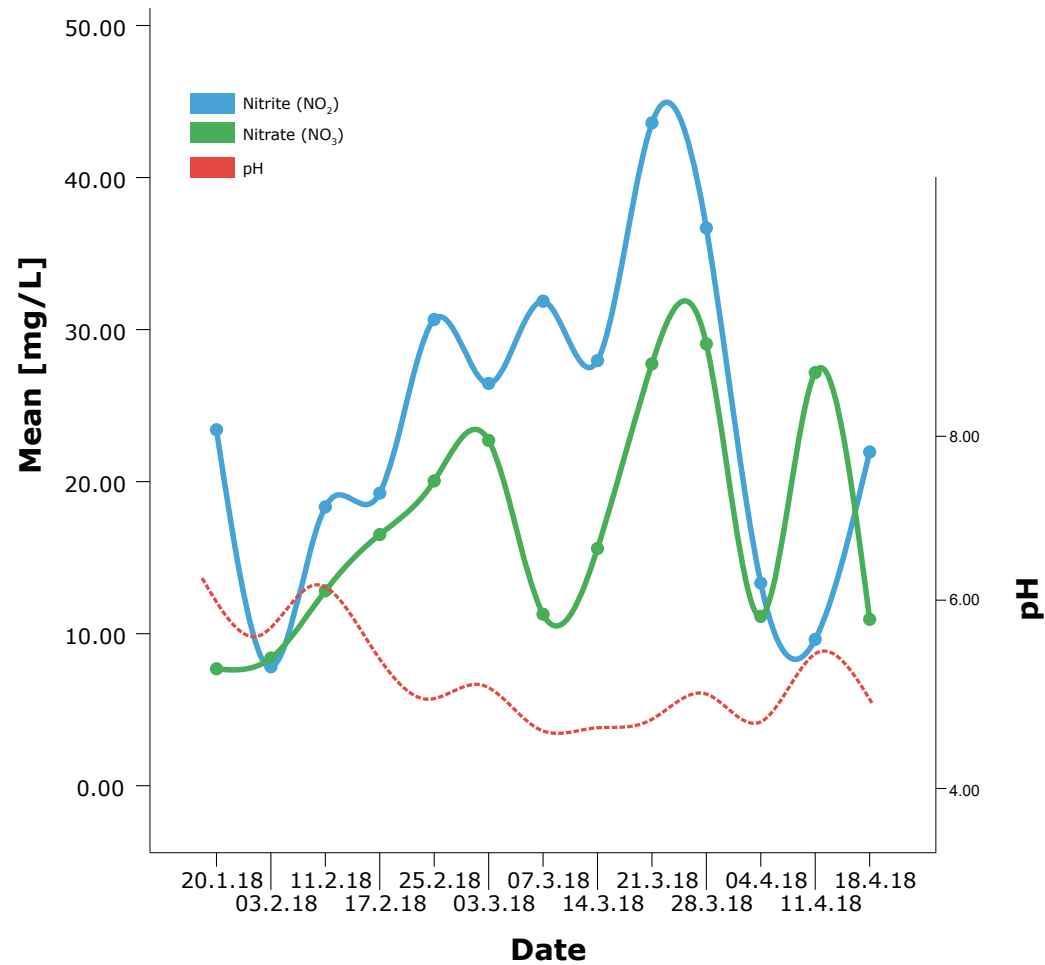


Preliminary results:





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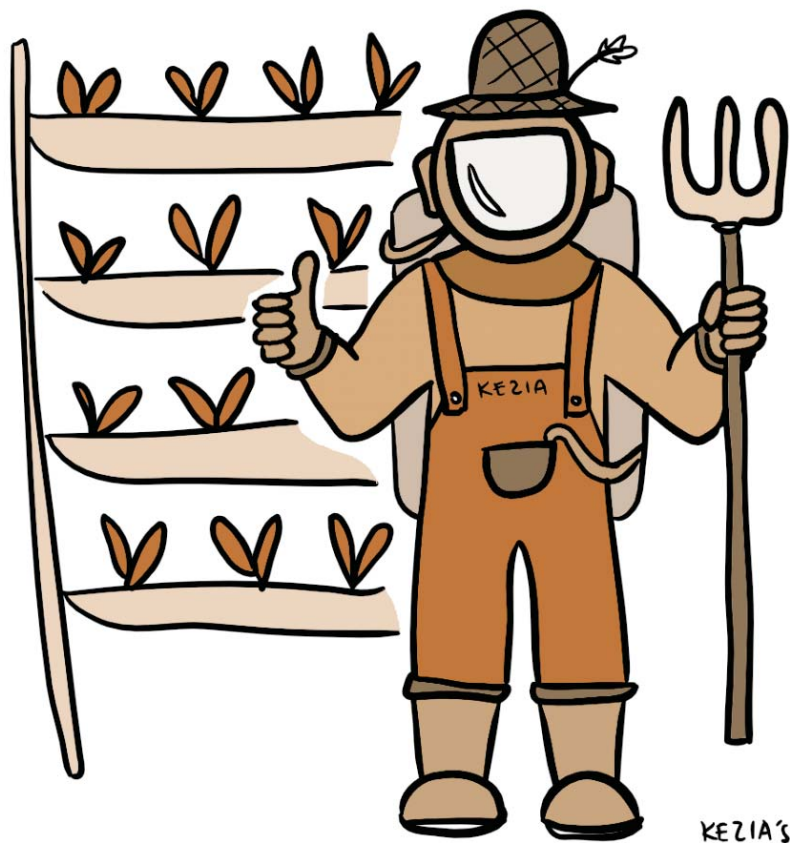


Next steps:





MARS. PLOT# 95



Thank you!

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Dr. Dan C. Vodnar, Msc. Bogdan Rusu
Dr. Floricuta Ranga, Dr. Manfred Koehler
Msc. Karina Kantor, Dr. Radu M. Giurgiu



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