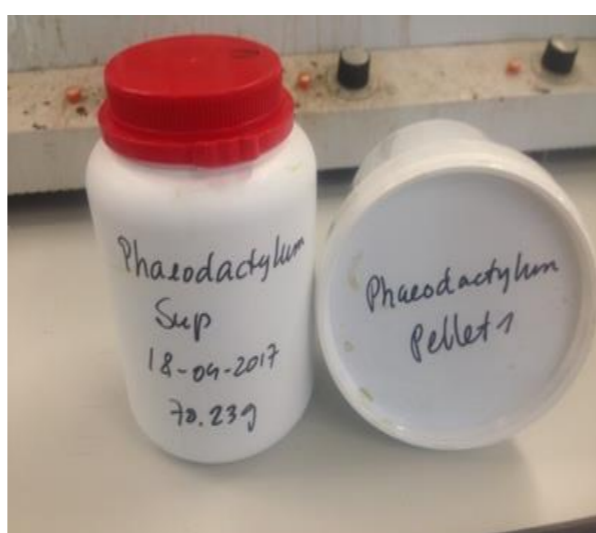


Phaeodactylum stimulates growth by increased NO³⁻ use efficiency

Methodology Test Phaeodactylum

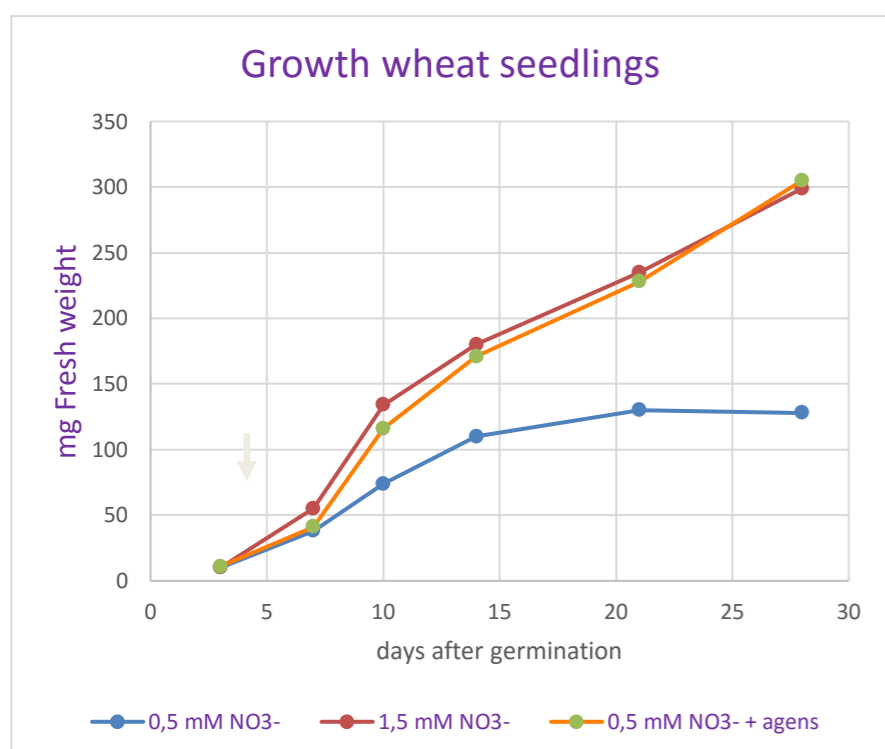
- Supernatans extracts were added after bacterie-filtering to
 - Wheat seedlings in nutrition solution
 - And in NO³⁻ concentration range
 - Sometimes enriched with N¹⁵-isotope
- Plants were analysed for growth, nitrate uptake and nitrate reductase activity
 - N¹⁵ incorporation
 - Protein analysis (Bradford and total N)
 - NiRu in vivo analysis
 - Root length measurement by (Geotron, Model WLMI)



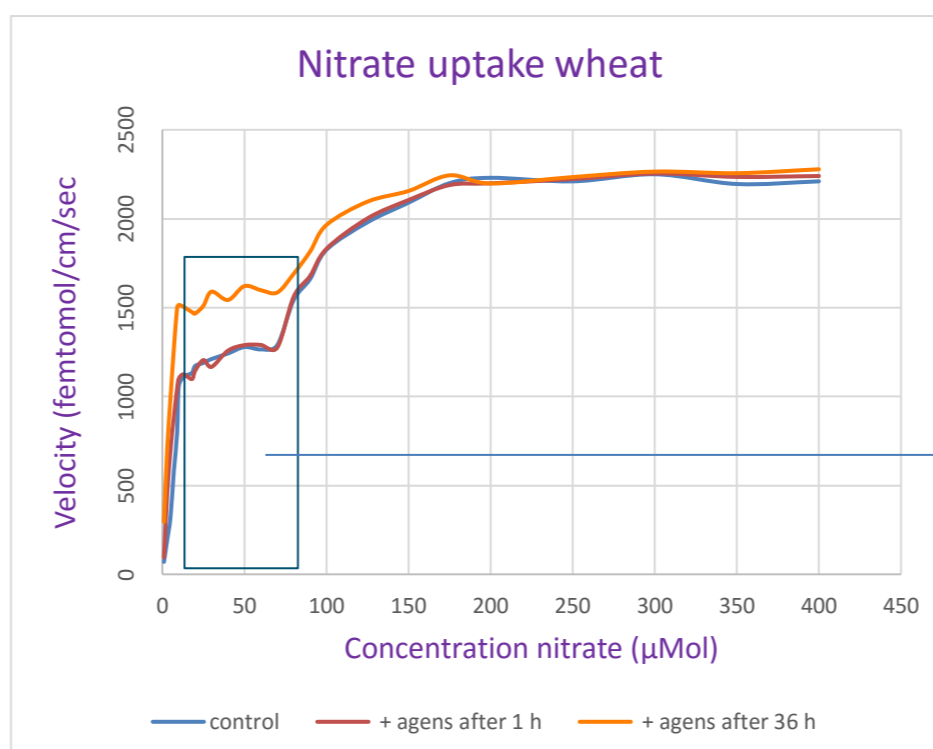
Phaeodactylum

- No increased growth rate
- No increased expansion rate of leaves
- No delayed senescence
- No increased branching
- But higher N-efficiency
 - More biomass per unit
 - Improved uptake
 - Put out deeper N in medium

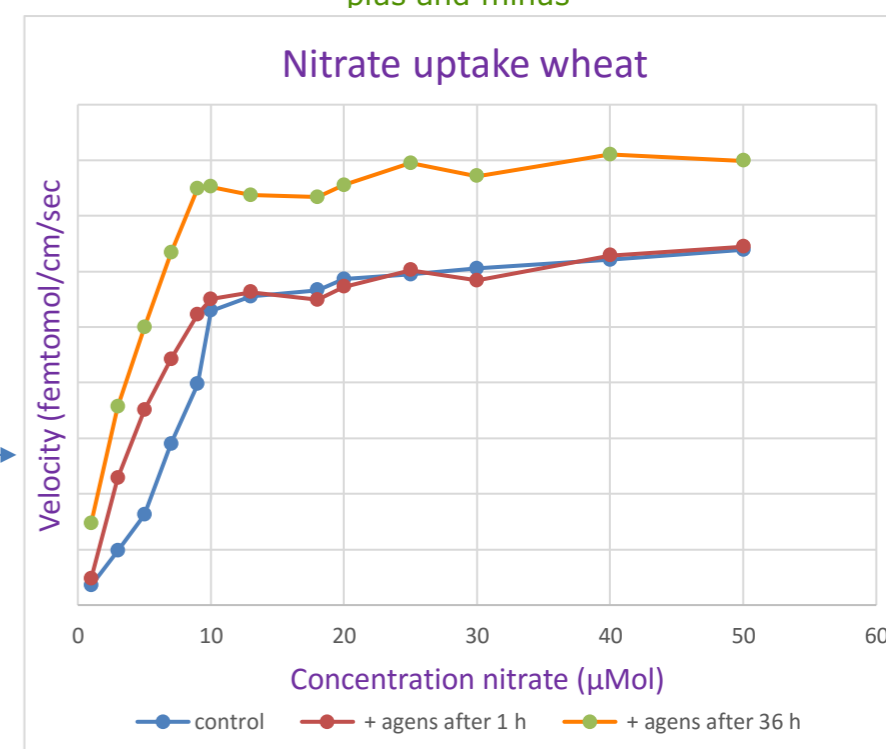
Growth of wheat seedlings plus and minus Phaeodactylum, batch 2



Uptake experiments-1



Uptake experiments-2: focus on system 1 plus and minus



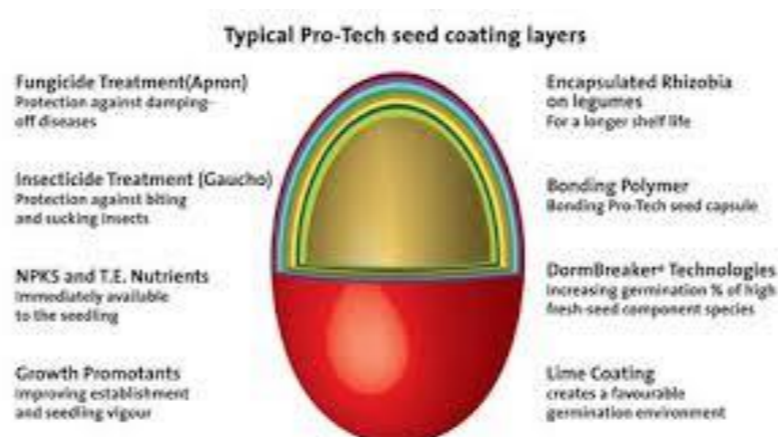
Effects explained

- Nitrate uptake is biphasic; high and low affinity system
 - Shifts in Km (=affinity index) in system-1; within 1 hour, probably due to change of configuration of carrier
 - Shifts in Vmax after 36 h, change via protein synthesis
- Nitrate reductase activity unchanged; but Km 25% lower

Business application

Phaeodactylum

- Seed coating
- Grass breeders for "sport grass reinforcement"
- Slow release sources



Dosage

0,2-1,0 FD gr equivalents (per unit 100 ml)

Estimated additional costs
0,3-1,75 €ct (per unit 100 ml)

Please contact me for business ideas, cooperation projects, feasibility studies

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