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Growing without chemicals



Malmo, January 2014

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Crop protection at present

- Present situation:
 - *biological control of pests
 - *Chemical treatments
 - *Non chemical measures (for instance insect nets)

*Based on Curing problems



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Future situation:

- More pests and diseases
- More resistance of insects/ diseases against chemicals
- Less chemicals available
- Increasing fertiliser prices
- Above legal MRL requirements



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Solution!

- Crop protection based on PREVENTING problems (**resilient growing**)
 - -create disease suppressing conditions
 - -"Boost" plant vitality.
 - **-98% of micro organism are positive!**
- Projects in the market:
 - 2011: Koppert Start of Natugro Project
 - I.C.C.: growing experiences; often better results in substrate with **more organic** matter, less diseases etc!

Example:



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Situation 2014

Koppert: Natugro:

*Positive results concerning:

- disease suppression.
- improve balance in the plant
- reduce use of nutrients and chemicals
- but better results when **organic material** in the substrate.

I.C.C. -trials with Pull Rhenen, to produce substrate with much organic material (pull organic).
 -Conclusion: **Positive results, concerning diseases, nutrients, and crop development.**

2014: cucumbers: 4 ha pull organic (4 companies).



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Some conclusions

*Substrate with organic matter is very positive. Easier to build up a better biological balance

*Organic material is also positive; kind of natural **chelate** (better consumption of spore elements).

*Project 2014:

- ***improve biological balance**
- ***reduce use of nutrients**
- ***better balance in the crop.**
- ***Target: reduce costs.**



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Situation 2020

- *Insects: biological control in combination with anti insect nets
- *To prevent fungus diseases:
 - *Water quality! (sufficient oxygen, and no diseases)
 - *Biological balance WITHIN the substrate:

*to reduce the use of chemicals it will be a concept based on:

- *biological balance in the substrate (antagonist and biological products to improve balance)
- *varieties (resistant)
- *Substrate with organic material.
- *Hygiene!



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Important: Prevent CGMMV



*When you don't have it: keep it like that!
(it's easier to prevent it than to get rid of it)

- *When CGMMV:
 - *clean up 100% (checklist).
 - *Important: organisation, clean water and crop work!



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