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# **2024 Cucumber Conference**

October 17 2024

## topics

\*Situation 2024

\*Crop protection

\*Artificial lights; LED

## Situation Netherlands 2024

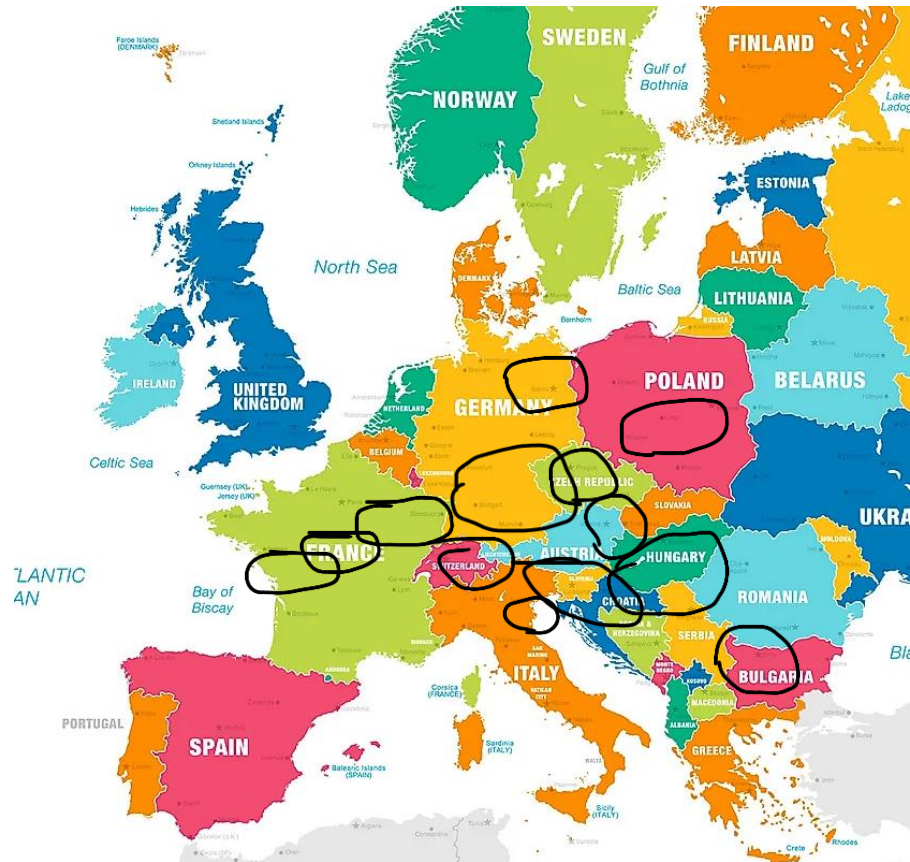
- \*Acreage more or less stable: 600 ha.
- \*Less but bigger companies. Expansion of scale.
- \*More crops under artificial light in wintertime; mainly LED

\***Market in 2024**: prices in January-March: low

\*April onwards: much better! August/ September; very good.

**2024 was a good season.**

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We have to prepare for future.

- Less/ no chemicals left.
- We have to recirculate all the water
- New diseases, virus.
- Less energy input.

A “Challenge”.

## Anti insect netting

\*In some regions standard:

South/ East: > 50% of the surface

West: 2025: standard.

\*Type of Netting: to keep aphids/ white fly out.

0,4 x 0,7 or 0,27 x 0,77 mm.



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\*Effect on climate is limited! Only first 2 weeks after transplanting, temperatures will be higher.

More use of coatings in summer



\*Biological balance: much easier!! Less chemicals needed.



## Replace chemicals by bio products.

### Bio fungicides.

Name	Activa matter
Serenade	Bacillus amyloliquefaciens strain QST 713
Lalstop K61 WP	Streptomyces strain K61
Amylo-X WG	Bacillus amyloliqueefaciens subsp. pantarum strain D747
Taegro	Bacillus Amyloliquefaciens Strain Fzb 24
Serifel	Bacillus amyloliquefaciens strain MBI 600
Romeo	Saccharomyces cerevisiae Strain LAS117 (yeast)
Fado	COS (chitosan oligosaccharide) and OGA (oligogalacturonide)
Karma	Potassium hydrogen carbonate
AQ10	Ampelomyces quisqualis (strain AQ10)

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Both are Canis Lupus breeds

## Bio insecticides

Name	Active matter
Azatin	Azadirachtin
Oikos	Azadirachtin
Neemazal	Azadirachtin
Mycotal	Lecanicillium muscarium Ve6
Botanigard	Beauveria bassiana
Neudosan	Potassium salts and unsaturated fatty acid



Name	Activa matter
Dipel	Bacillus thuringiensis kurstaki strain ABTS-351
Turex	Bacillus thuringiensis subsp. aizawai
Xentari	Bacillus thuringiensis subsp. aizawai



Aphids. Biological control is standard:  
*Aphidoletes aphidimyza*, *Aphidius colemani*, *Aphidius ervi*,





## Bio fungicides root system

Name	Active matter
<b>Trianum</b>	Trichoderma harzianum T22
<b>Asperello</b>	Trichoderma Asperellum T34



## Resilient growing systems; organic substrates?





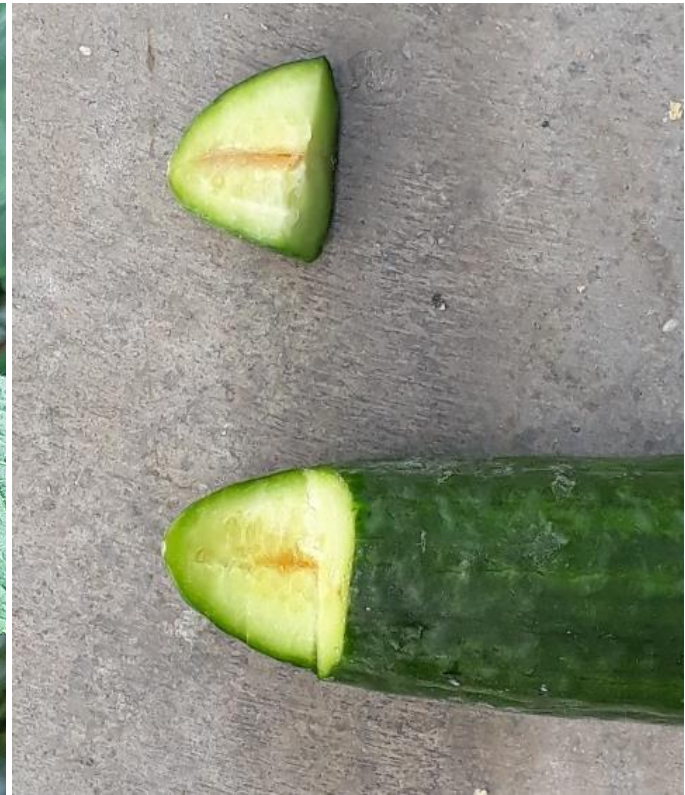
Bio stimulants; often based on:

\*Silicon (Si)

\*Amino acids.

<b>Silgreen sprayk</b>	Silicon Foliar spray
<b>Vidi Terrum</b>	Amino acids
<b>Vidi Parva</b>	Amino acids
<b>Root and Shoot</b>	Nutrients, trace elements and bio stimulants.
<b>Vacciplant</b>	Laminarine bio stimulant

**Problem: *Mycosphaerella*. Also in future!**



## How to control Mycosphaerella?

\***Climate:** Plant empowerment.

Keep “vertical temperature differences small”.

Energy screen; settings also based on outgoing radiation.



\*High wire: **Picking flowers (standard)**

1500 flowers/hour.



## UV-C light to control powdery mildew.

- \*20 years ago; negative results; phytotoxicity
- \*2024: New projects.
- \*Max. 50 J/m<sup>2</sup>.
- \*Positive results also in combination with bio fungicides.
- \*Conclusion: **there are possibilities.**





Prevent C.G.M.M.V. virus.

Two harvesting systems; every row a knife or special knives.



## Results?

- \*Some very positive results; official trials and in practise.
- \*Some problems emerged.
- \*We learned a lot.
  - Be careful with giving organic products by the drip water.
  - Spraying is better, but complicated.

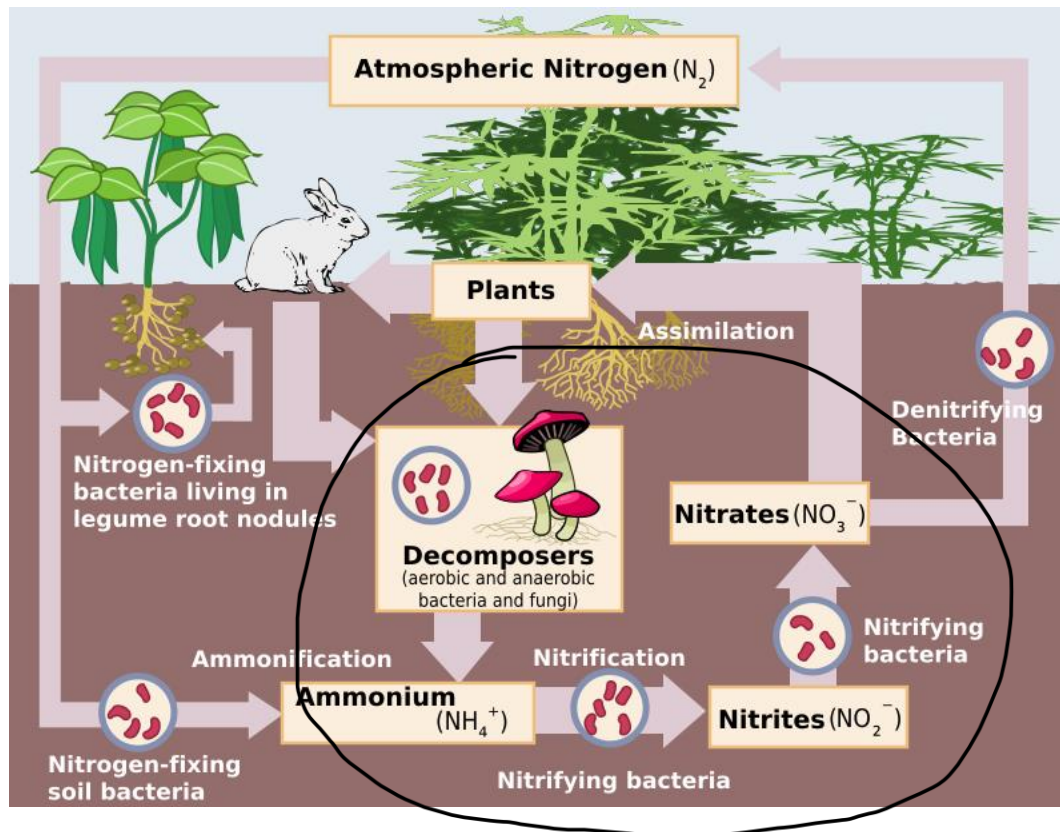


## Clean drip water!!

- Priority; to avoid diseases and to realize good results.
- We have to recirculate **all** water.

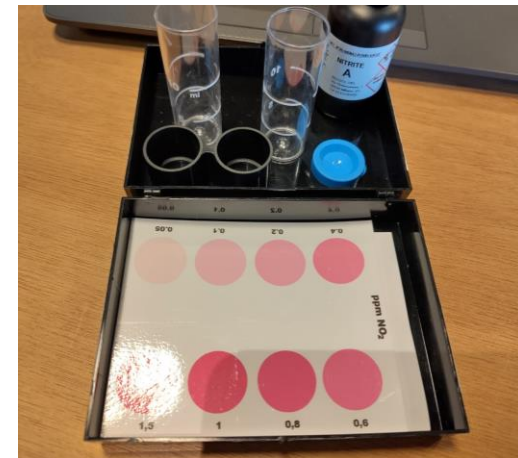


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## Nitrite (NO<sub>2</sub>)

- Nitrite: very bad for the crop! Loss of vigor/ production.
- When?: organic material and low oxygen
- Check: nitrite in the drip water: below 0.5 mg/l
- Oxygen should be above 5 mg dissolved oxygen/l



testkit NO<sub>2</sub>.

## Disinfection: must be 100%

- Standard systems: Heat, UV and ozone.

**Heat:** based on temperature and time.

85c: 3 minutes

99c: a few seconds.

**UV:** based on UV-C. Light transmission!

- But every year some examples of not functioning.

## Every year: disinfection check!

Code onderzoek: 709      Datum ontvangst: 27-09-2023      Monster genomen door: Eurofins Agro      Contactpersoon monstername: Egbert Rens: 0621695775

Resultaat	Onderzoeknummer	760914	760915
	Monsteraanduiding	voor ontsmetter tuin 2	na ontsmetter tuin 2
	Aëroob kiemgetal 22°C kve/ml	> 30000	70
	Totaal aantal schimmels kve/ml	28 a)	1 a)
	Tot. aantal gist+schim. kve/ml	70 a)	1 a)

### Gebruikte afkortingen:

kve: kolonie vormende eenheden

- a) Het resultaat geeft een indicatieve waarde weer.
- b) Er is slechts een detectie waargenomen van de aanwezigheid van micro-organismen.
- c) Door de aard van het monster is/zijn de kolonies van 1 of meerdere platen niet telbaar. Dit geeft een grotere spreiding op het gerapporteerde getal (dan gebruikelijk)
- d) De incubatietijd van 4 dagen is gehanteerd en dit wijkt af van het protocol. Dit geeft een grotere spreiding op het gerapporteerde getal (dan gebruikelijk).

Toelichting	Richtwaarden na ontsmetter:		
	Aëroob kiemgetal	< 500	kve/ml
	Totaal aantal schimmels	< 25	kve/ml

Indien de waarden na ontsmetter hoger zijn dan bovenstaande richtwaarden adviseren wij u om een nieuw monster te nemen en contact op te nemen met uw leverancier.

## Remarks

\*Many growers have a systems based on **two systems**:

Heat/ UV in combination with another technique:

Stabilized peroxide or Ultrasonic transmitters



## In between crops; some disinfection.

\*Past: only **one day** between end of crop and new crop.

Not anymore: often **2 to 3 days**.

\*2024: (when old crop out) spray substrate with products based on peroxide. Less diseases!

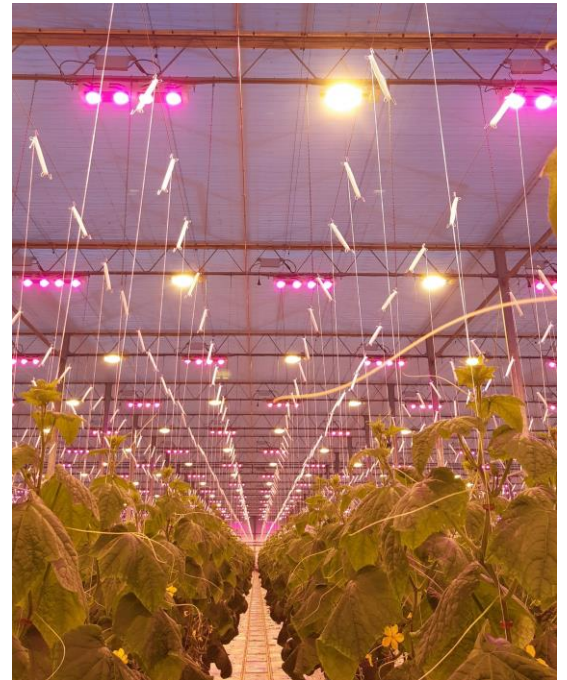


## LED lights.

- \*HPS replaced by LED
- \*Broad light spectrum: 76,8,8,8 (red, blue, green, farred).
- \*Dimmable, flexible systems
- \*More than 180  $\mu\text{mol}/\text{m}^2/\text{s}$
- \***R.T.R** (ratio temperature radiation) is very important.



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# Thank you!

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We also have a **weekly newsletter/website.**



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