



# Favori ins & outs

Danish Strawberry Conference

October 26, 2022



**Jan Robben**  
Agronomist

Flevo Berry B.V.  
Enserweg 23  
8307 PK Ens  
The Netherlands



Tel: +31 (0) 651246157  
[www.flevoberry.nl](http://www.flevoberry.nl)

Breeders of the "*Flevo Berry Concept*" strawberry varieties



# Favori, an important variety for the Danish market

Every season is different

Different issues appear, depending of several variable factors that often occur simultaneously

## Most important challenges:

How to avoid:


- Tipburn
- Dry truss stems and black flowers
- A premature tired or aging crop
- Small fruits, starting from the second flush
- Seedy fruits

For all challenges there is one main reason: **Imbalance**

# Imbalance (1)

All aforementioned topics are more or less related to the balance between sinks & sources

## Net photosynthesis

- Amount of assimilates the plant can collect through the leaves (**sources**),  
**minus**
- The amount of assimilates the plant needs for roots, leaf development, flower and runner initiation, fruit development and breathing (sinks).
- If net photosynthesis is low or even negative, not all processes can be done well, and problems will appear  low plant activity
  - Reasons for low plant activity:
    1. Less leaf area versus high plant load
    2. Too high temperature + low relative humidity (stomata closed, no CO<sub>2</sub> uptake)
    3. Most worse: combination of 1 and 2.

# Imbalance (2)

## Root pressure

Balance between availability of water and nutrition (**sources**) and usability of water and nutrition + evaporation (**sinks**)

- Low root pressure
  - Just planted and low humidity + high temperature
  - Too little irrigation or interval between irrigations too long
  - Too high EC around the roots
  - All before mentioned reasons for low plant activity
- High root pressure
  - Uptake of water is higher than the plant can use
    - After a big harvest flush
    - After rigorous leaf cutting
    - After cooling down quickly in combination with warm substrate (active roots, decreasing evaporation)



# Tipburn + dry black stems/flowers (1)

## The reasons for damage:

- Low root pressure
  - Calcium is not transported well to the youngest parts of the plants
    - Other reasons for less calcium transport:
      - Too dry substrate
      - Too high EC, dying root tips
      - Too wet substrate, dying root tips
- High root pressure
  - The plant squeezes the water out = damage of the youngest parts of the plant
  - Squeezing out water through stems can look like Erwinia
- Combination of less calcium uptake and high root pressure



# Tipburn + dry black stems/flowers (2)

## How to avoid:

- Just after planting until sufficient new roots are developed
  - Increase relative humidity to increase root pressure and with this, calcium transport.
  - Sprinkle over the plants and close tunnels in the evening to reduce evaporation
- When sufficient new roots are developed
  - Stimulate evaporation, to avoid too high rootpressure
  - Don't sprinkle anymore and don't close tunnels to keep a moderate humidity
- To avoid tipburn after a huge harvest flush (reduce root pressure)
  - Stimulate sufficient vegetative growth and with that, leaf area and canopy width (more evaporation)
  - Don't cut green leaves on the end of a huge flush or short after a huge flush
  - Don't irrigate too late on the day





# A premature tired or aging crop + small fruits (1)

## Reasons:

- A low or even negative net photosynthesis
  - Amount of leaves compared to developing fruits low
    - Long days stimulate overload flower initiation
  - Too much leaf cutting
  - Too high temperature over a long time
  - Periodically high plant load in combination with high temperature
- Too high EC, low or high pH
- Wrong fertilizing schedule
- Accumulation of trace-elements in the substrate (Mn + B)
- Wrong irrigation
  - Too less, too much, interval too long/short,





# A premature tired or aging crop + small fruits (2)

## How to avoid:

- Strive to 2 developing fruits for each tripartite leaf
- Strive to continuously developing new and big leaves (0,5-1,0 mmol NH<sub>4</sub>)
- Strive to a canopy width as wide as possible (at least 50 cm)
- Strive to continuously 120 fully developed leaves on each 1 linear meter gutter
- Use clean water (low Na + Cl)
- Follow an accurate fertilizing and irrigation schedule (radiation or dry-out)
- Change K:Ca in the recipe depending of plant load (start 3:4, balance 4:4, plant load 4:3 or 5:3)



# A premature tired or aging crop + small fruits (3)

How to avoid:

- On the end of a huge flush change recipe already to 3:4 or 3:5)
- Check EC sum daily and adjust the drip EC if desired (EC-sum 2,50)
- Check drain % daily and adjust irrigation if desired
- Follow the accumulation of Mn + B in the leaves, through plantsap analyzis
- Avoid cutting green leaves as much as possible
- Cut yellowing, worn-out leaves frequently (not rigourous)
- If you can, increase the amount of substrate on each linear meter gutter = more root capacity





# Seedy fruits

## Reasons:

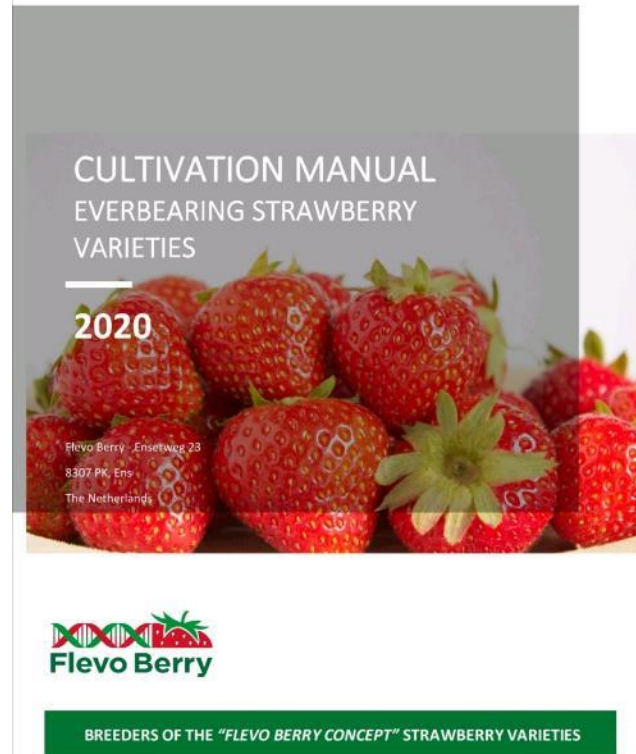
- Genetically issue.
- In periods of high plant load, the plants take up more K.
- K is a mobile element and can move easily to all parts of the plants, but a plant gives priority to feed the young parts, above the fruits.
- If K is periodically insufficient available, K can be thrown back from the old leaves and from the developing fruits (even from small green fruits or from a still closed flower bud)
- K makes pressure in fruit cells (like the air in a tire).
- If plants throw back the K, the pulp under the fruit skin shrinks (flat tire) and the seeds come higher on the fruit skin.

## How to avoid:

- Increase K if plantload is high (5:3), however switch in time to a more vegetative schedule (3:4) when plantload is decreasing quickly.







## Cultivation manuals & Variety information available for:

All everbearing varieties

June bearing varieties:

- Sonsation
- Flair
- Dahli
- Faith
- Falco
- Magnus

*Available through your plant supplier*

*Or send a request to:*

[janrobben@flevoberry.nl](mailto:janrobben@flevoberry.nl)