Future orchards
Labour efficient canopies
How do we get more labour efficiency?
High colour varieties?
One – pick varieties?
One pick varieties
Using overhead irrigation to improve colour
Growers have made changes to their trellises and growing systems.

They’re using netting and evaporative cooling to protect fruit from the sun.

Advances have been made in spray application technology.

But there have not been major changes to reduce the labor input.
The trend is for more bi-coloured varieties but these are less efficient to pick.

- Jazz
- Kanzi
- Smitten
- Mi Apple
- Envie
- Rocket
- The exception is Bravo
Do we need simple Tree Forms?
6 to 10% from a orchard should be replaced so that you stay updated with new varieties and orchard systems.
System comparison

3D 3 X 0.80

2D 3.6 X 1.2

2D V 3.6 X 0.6
Can we reduce labour cost
Labour efficient canopies.
A different system in the USA
What is the future system?
Nothing new.
Bi–baum
New development in hailnet.
Steel frame designed by Nightingale Bros. to extend existing poles.
Picking machines and platforms have shown significant improvements in harvest efficiency but in studies the cost reduction in labour has just been put in the capital budget so there are no real financial gains.

Other limitations to efficient use of platforms are crop consistency and canopy dimensions (suitable for modern orchards but not old, low density orchards).
“Be not the first by which the new is tried, nor the last to lay the old aside”
Three row sprayer.
“We don’t have large budgets, so we have to make every dollar count as much as we can.”
Future breeding.

- Cisgenesis
Definition of Cisgenesis

- A cisgenic plant is genetically modified with one or more natural genes from a crossable donor plant.
- The gene is under control of its native promoter, contains its introns and terminator.
- No foreign genes, such as bacterial genes
- Same genes as in classical breeding
Cisgenesis: steps in the process

Steps:
1. Isolate target gene from donor plant
2. Bring this gene into a high quality cultivar (genetic modification)
3. Evaluate the cisgenic plants for trueness to type and target character, select out somaclonal variants
First cisgenic test orchard (Vf2) in Wageningen
Nursery: the future
A very labour efficient way of growing trees
Zelfs op een bewolkte dag werkt onze zelfrijder op zonne-energie. Volop peren aan het opschonen voor afleverseizoen 2017-18.
The future of monitoring the orchard.

- Dromes
- Sensors mounted on the tractor to count flowers, crop load etc.