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INNOVATIONEN FÜR DEN  
PRODUKTIONSGARTENBAU

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Of experiences and developments – Why is  
everything moving so quickly?



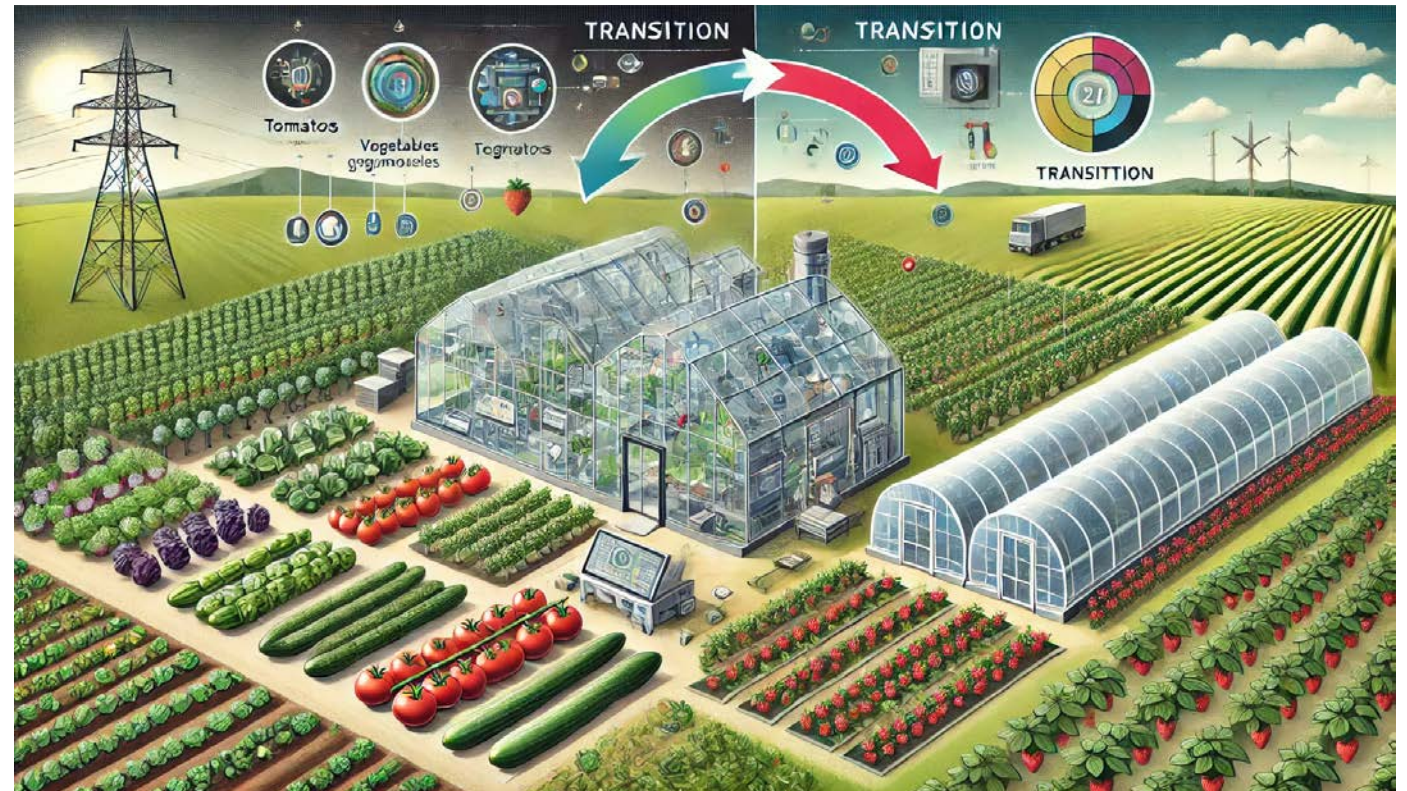
## Marco Joseph

- Father
- Apprentice ornamental plants
- Dipl. Ing. Horticulture
- More than 25 years experience in horticulture
- Experience in growing ornamentals and Tomatoes
- Independent consultant and connector since 2020
- Networking worldwide
- Cooperative working
- Educational training



# Everything new? Or has it been there before

- Technologies from other areas of horticulture
  - Highwire crop
  - Hydroponic lettuce
- Use knowledge transfer
- Experience taken from other areas



# Established technologies

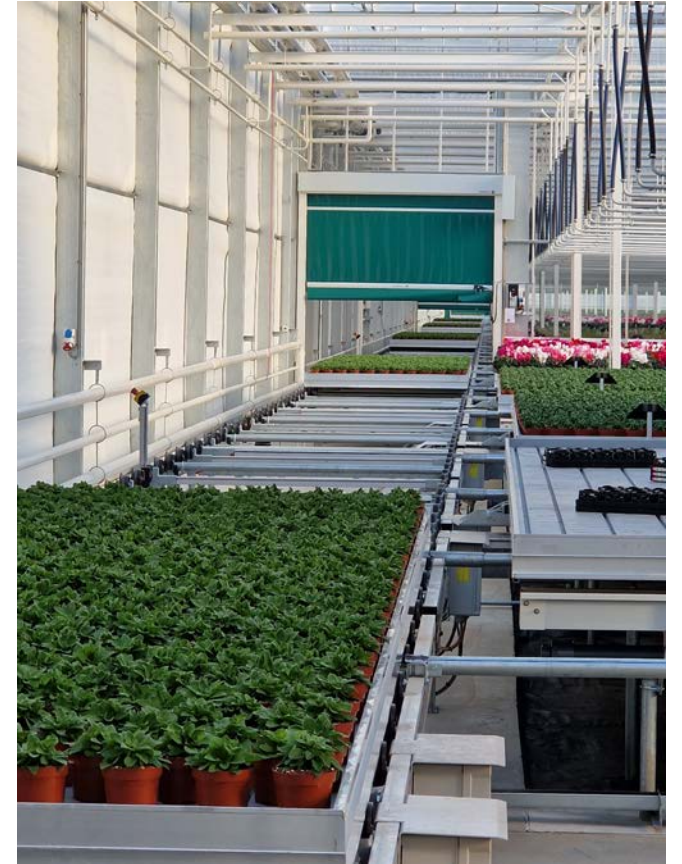
- Filter technic
- Recircular Systems
- Water treatment
- Climate controle



- → A lot is already known from other areas
- → growing straberries is different, but not that different

# Why ist there so much developement right now?

- Social effects due to the pandemic
- Demographic changes
- Lack of ressources
- High energy costs
- Het nieuwe telen – Plant empowerment
- More possibilities due to techical developments
- AI



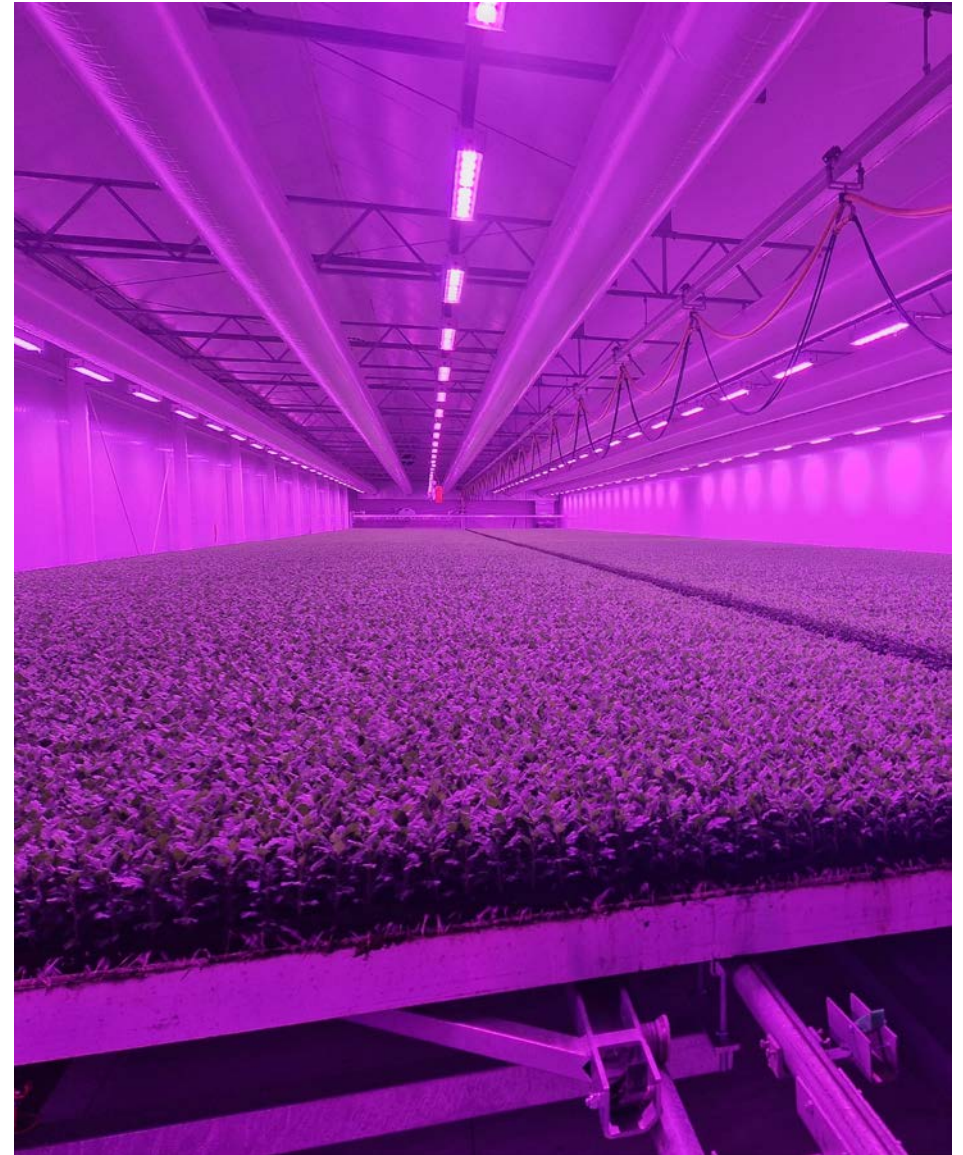


# Pandemic and demographic change

- Both leads and increase shortage of trained labour
- Seasonal workers are hard to find
- Seasonal workers don't stay as long, or not at all
- Bisheriges Schulungskonzept funktioniert nicht
- Current training concepts don't work anymore
- Solution: Robotic, Sensoric and AI to support

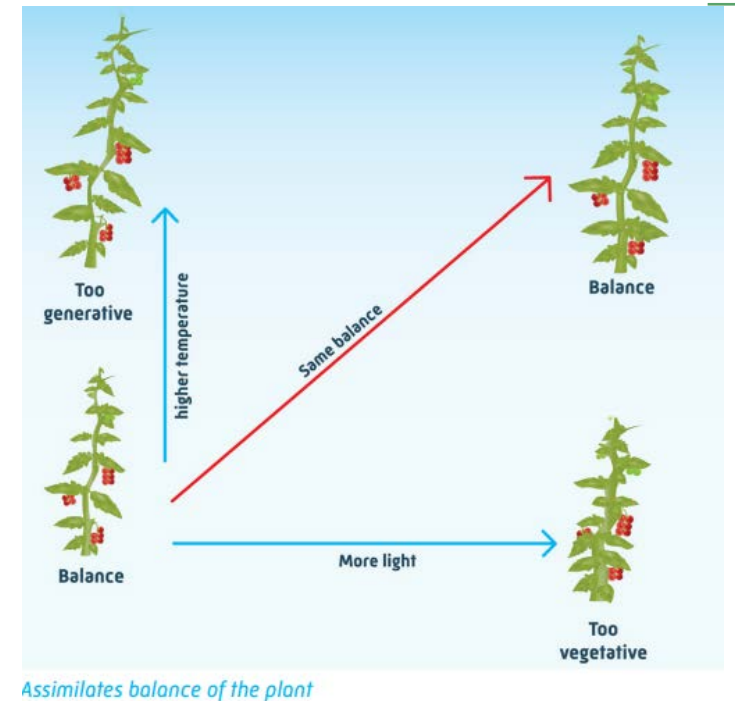
# Technology Trends

- Increased steerability
- Robotic
- AI support
- Water quality
- Increased plant vitality via Technologies
- Post harvest treatment
- Controlled environment agriculture



# Plant empowerment

- Spotlight on plant health
  - Energy in balance
  - Water in balance
  - Vegetative und generative growth in balance
  - Root and plant growth in balance
- Target: high productivity with low cost
- Solution: Sensor Technologies, other Technologies and crop management help to find and hold the balance with fewer resources





# Who benefits most?

If requirements of technologies are met:

→ The further a company is away from the optimal production, the more it can benefit from changes

# Research in Germany? Doesn't work!

- There are not enough capacities and technical requirements available
  - Reduction of budgets
  - Political guidelines
  - bureaucracy
- 
- Companies worldwide are developing solutions faster than it can be tested in Germany
  - Testing is done where it's representative and produces valid results
  - Trials are already done mostly in companies

# Summary

- Challenges drive mechanization
- Use technologies from other areas
- Experience is available
- Adaptation is needed



**→ To use experience out of other horticultural areas is beneficial to find optimal solutions for local and individual challenges**



