Van boerderij tot bord met technologie

Eldert van Henten
Contents

- Sustainability as driver for technology development
- Kind of technology needed
- Technology needed in the whole agri-food chain
- Technology as enabler of new opportunities
1. The agri-food chain is facing challenges

- Growing world population
  - Food (quantity, quality), fuel, fibres, chemicals, ...

- Growing scarcity of resources
  - Fertilizers (phosphate), fossil fuels, water, human labour, ...

- Growing impact on environment
  - Greenhouse gasses, chemicals, waste, diseases, ...

Sustainable agri-food!
2. Future: data, intelligence and smart actuation
2. Future: data, intelligence and smart actuation

Van Tuijl (2013) based on Da Vinci (ca. 1490)
2. Future: data, intelligence and smart actuation

Decision making

Sensing   Action
Vision based precision weed control Steketee
2. Future: data, intelligence and smart actuation

Technical challenges:

- Variation in shape, size, colour
- Poor visibility
- Challenging conditions
3. Technology needed in the full agri-food chain

- Breeders
- Primary production
- Post-harvest processing

Phenospex.com
Melkvee.nl
nieuwoogst.nl
Phenotyping for plant breeding

The Marvin project
MAchine vision Robot for advanced INspection of seedlings

www.datavision.nu
Contact: Rick van de Zedde
3. Technology needed in the full agri-food chain

Breeders → Primary production → Post-harvest processing

Phenospex.com, Melkvee.nl, nieuwoogst.nl
3. Technology needed in the full agri-food chain

www.lely.nl
Sweet pepper harvester
3. Technology needed in the full agri-food chain

Breeders → Primary production → Post-harvest processing

Phenospex.com
Melkvee.nl
nieuweoogst.nl
Post-harvest - PicknPack
FlexCraft programme
4. Technology as enabler of ‘new’ opportunities

Intensification and scale enlargement → Loss of biodiversity

75% reduction in insect biomass!

Hallmann et al. (2017)
4. Technology as enabler of ‘new’ opportunities

- Large scale mono culture
- Intercropping
- Pixel farming
4. Technology as enabler of ‘new’ opportunities

Pixel farming
Van boerderij tot bord met technologie

- The agri-food chain is facing some challenges in years to come
- Future technology is about data, intelligence and smart actuation
- Technology needed in the full agri-food chain
- Technology as a problem solver and enabler of new opportunities
Contact information

Prof.dr.ir. Eldert J. van Henten
Farm Technology Group
Wageningen University & Research
Email: eldert.vanhenten@wur.nl
Tel.: +31 6 53317745