

# Pictures as a tools for assessments in field trials

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# What should we look at when developing new methods for assessment

- ▶ At least as good as the used standard method
- ▶ Fast and reliable
- ▶ Better documentation
- ▶ Equipment should be easy to use and cost effective

# Counting of emergence in field crops

Number of plants : 165



# Why did we want to develop a computer counting from images

- ▶ Counting in the field is time consuming
- ▶ Both counting in the field and computer counting will not be exact
  - ▶ But with computer counting we can document how wrong we are
- ▶ You will also get data on green leaf area with out extra work

# How did we do and what did we learn

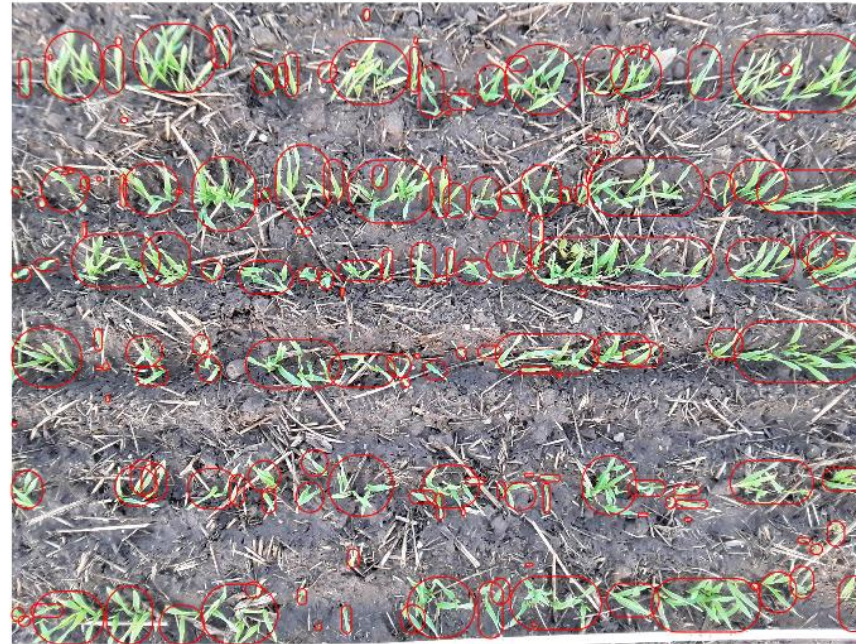
- ▶ Started with some good pictures from different crops
- ▶ We have used MatLab to analyse the pictures it could also be other programs
- ▶ Experimenting with light settings and how to identify a plant
  - ▶ Peas, beans, sugar beets, mais, oil seed rape was easy (not so many plants per square meter = Less risk for overlapping)
  - ▶ Cereals I more difficult due to density of crop
- ▶ So allot of time was used on correcting the algoritme to different BBCH and crops and allot of manual counting on pictures to find out how wrong the computer are
- ▶ Problems: timing of BBCH, color of plants (rye can be very purple in early stages, which can be difficult to separate from ground color)

# Timing is essential

Number of plants : 165



Number of plants : 178



# Future development

- ▶ Drones
  - ▶ Today we would be able to make emergence if we use plant coverage or similar instead of counts
  - ▶ When the multispectral cameras get cheaper it will most likely be possible to distinguish different fungals from the air.
- ▶ Development of image recognition
  - ▶ Some of the most advance algoritme can already today recognize different weed species from a picture, this could develop fast.
  - ▶ The technic is there, but is the money there as well, and are the regulatory authorities ready?