



RGB-Image based phenotyping
—
from parameters to information

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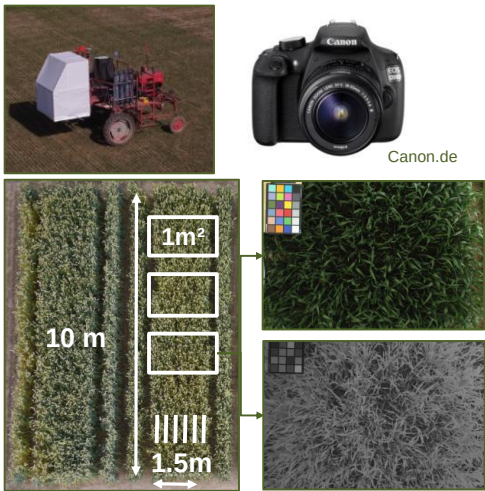
3rd APPN Meeting Vienna - 13.06.2019



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Phenotyping via RGB Images

- Field trials:
- 12 winter wheat varieties
 - 2 cropping systems
 - 2 locations
 - 2 years
- Image capturing every 2 weeks:
- Canon RGB DSLR
 - mounted in a tractor-based phenotyping platform
 - Covered with translucent fabric



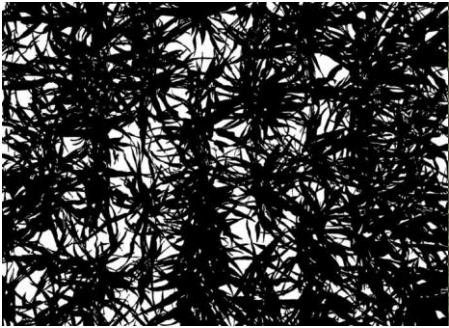
2

Parameter development

Aim: Detect vital, chlorotic and necrotic areas

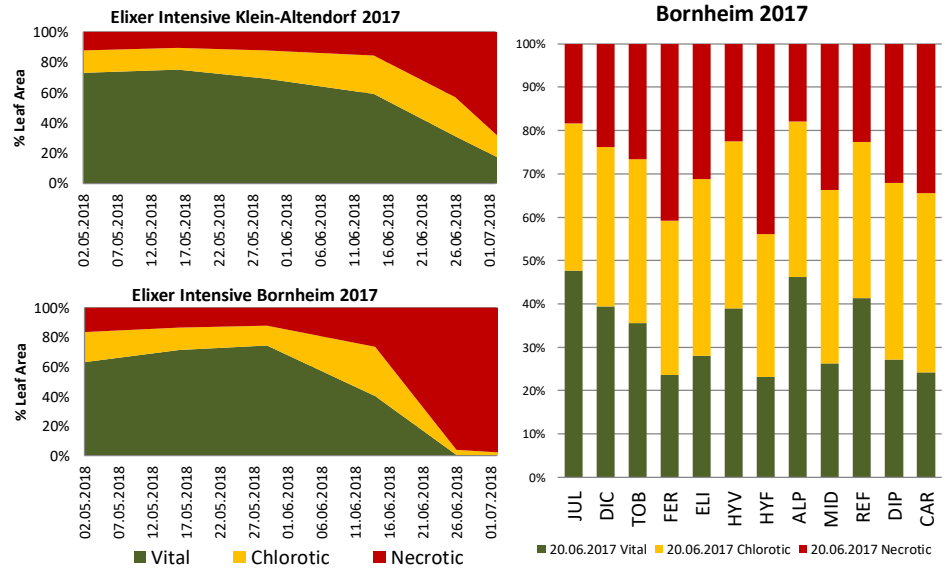
- 1. Separation of plant and non-plant pixels
- 2. Transformation of RGB to HSV color space
- 3. Definition of Hue based pixel clusters for vital (>75°), chlorotic (61°-74°) and necrotic (<60°) tissue
- 4. Estimation of absolute count of pixels per cluster

	Plant	Non-Plant	Accuracy
Plant	13.480.162	32.002	99.7 %
Non-Plant	93.605	7.206.731	98.8 %



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Vitality estimation



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CropWatch – Information system for process control and analysis in plant production

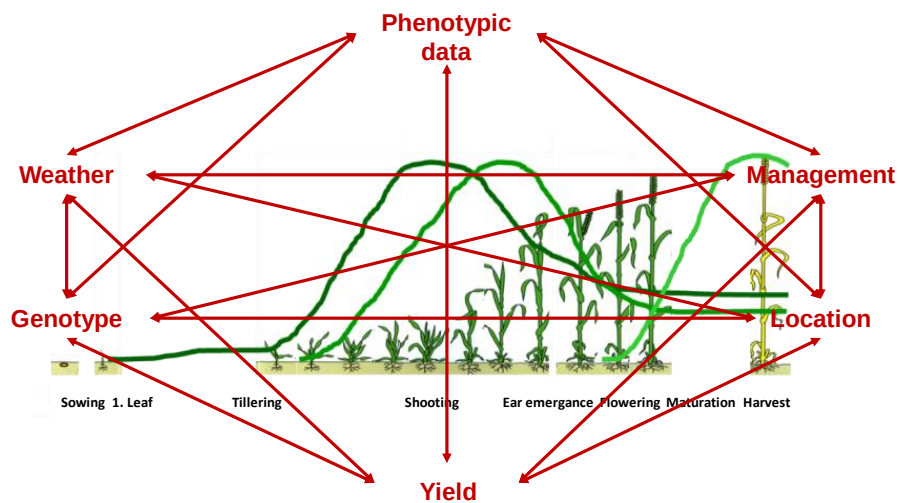


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Available data



Standard	Unit	Parameter	Value
Bodenart	0 - 10 cm	17	18
	10 - 20 cm	18	19
pH	0 - 10 cm	5.5	5.5
	10 - 20 cm	6.5	6.7
pH (Morgens) (mg) Klor	0 - 10 cm	13.5	13.5
	10 - 20 cm	11.5	11.5
pH (Morgens) (mg) Klor	0 - 10 cm	11.5	11.5
	10 - 20 cm	11.5	11.5
Mg (mg) (mg) Klor	0 - 10 cm	11.5	11.5
	10 - 20 cm	11.5	11.5





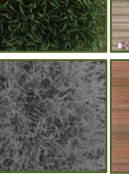
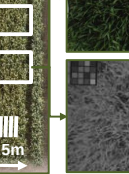
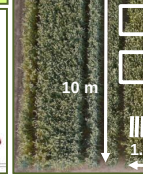
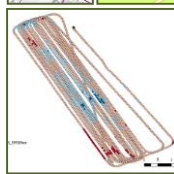
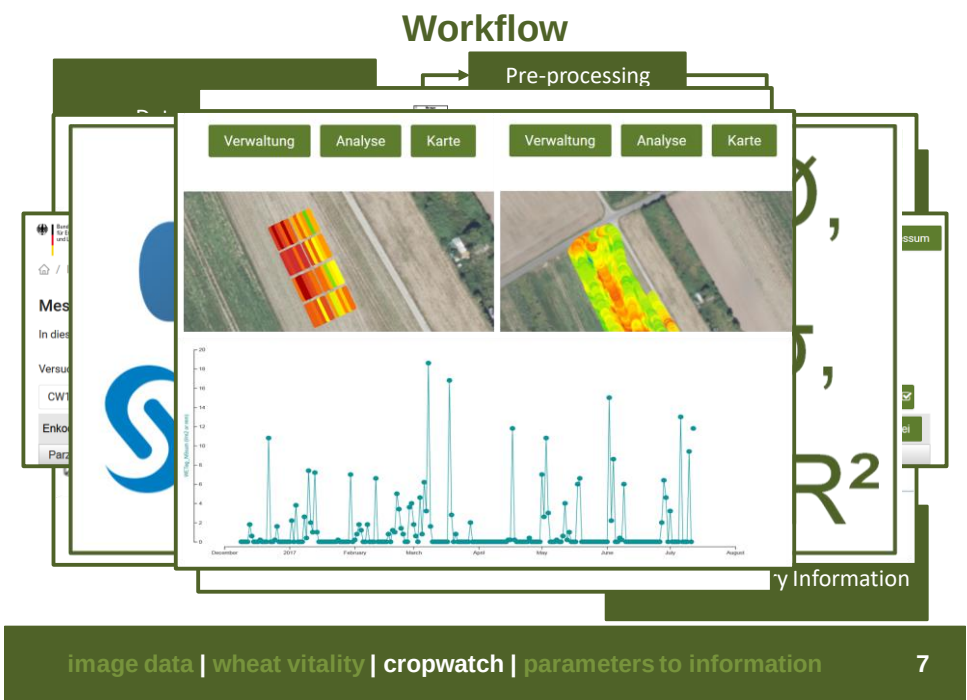
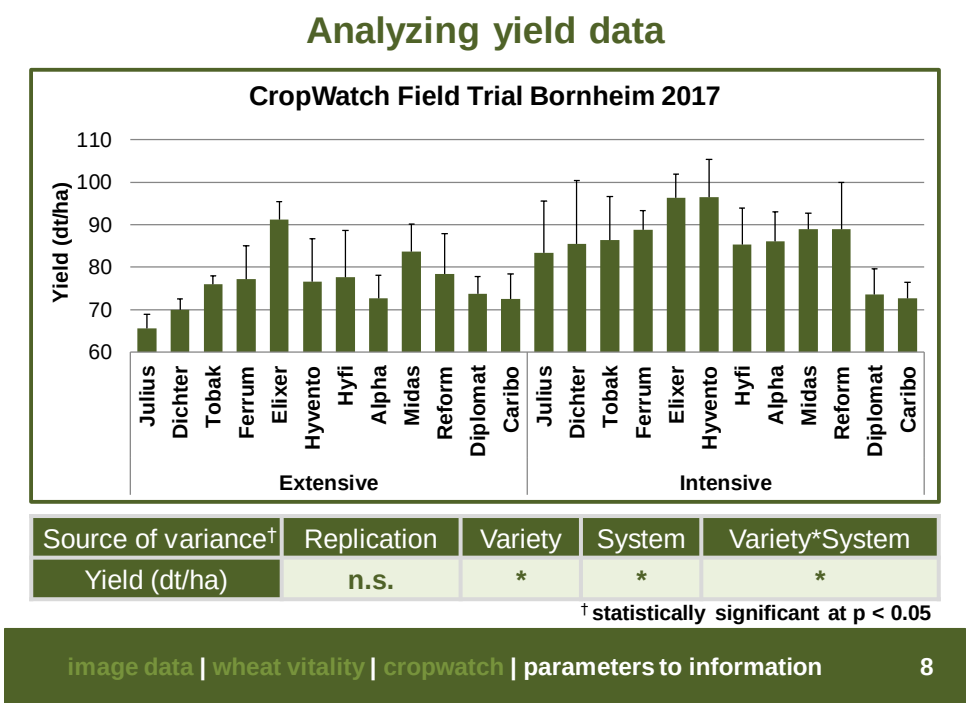


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Combining data sources



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[Impressum](#)

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