USE CASE 1.1: WITHIN FIELD MANAGEMENT ZONING (POTATO)

- 2 arable farms: on sandy soil (Reusel) and clay soil (Abbenes)
- 4 IoT demonstrators (wireless transmission of data, yield prediction and mapping, actuation in management zones, quality in storage)

Demonstrations of IoT devices, integration and equipment
Our vision and approach in the use case

Integration of sensors, data, platforms, interfaces, models, tools, equipment

Soil data: type, O.M., CEC, pH, nutrients, parameters ..... 
Crop data: stage, biomass, yield, quality, abiotic stress, model para-meters ..... 
Biotic stresses: Diseases, pests, weeds 
Climate data: radiation, temp., r.h., rain, etc., ..... 
Water: soil water balance parameters, water table, ..... 
Agronomic models (climate, crop, soil, water, biotic stresses, etc.) and/or other tools that give management information 

Management data: from tillage to harvest .....
The Cycle, growth and data

WINTER:
1. Mapping fields
2. Soil scan
3. Calculate tramlines

SPRING:
4. Organic fertilizer
5. Soil cultivation
6. Variable planting

SUMMER:
7. Crop protection

AUTUMN:
8. Storage
9. Harvesting
10. Variable fertilizing
11. Crop measuring
12. UAV sensing
13. Crop sensing
14. Irrigation

Sense  Interpret  Decide  Act
Taskmaps

Bayer - 2017 Aardappelen
Treatment zone

Client: < Unassigned Client >
Fields: Bayer
Crop: 2017 Aardappelen
Name: plots

Van Gompel herdersdreef - 2017 Aardappelen
VRA planting distance

Client: Van den Borne Aardappelen
Fields: Van Gompel herdersdreef
Crop: 2017 Aardappelen
Name: VRA planting distance
Min: 310 cm
Max: 350 cm
Avg: 351 cm

Legend:
- 300 cm
- 370 cm
- 350 cm
- 330 cm
- 510 cm
UC1.1, task map VRA planting potato (test 2017, Abbenes)
App for ordering of soil maps (autumn 2018)

https://www.youtube.com/watch?v=Um2EJcL_TSU&t=8s
Current situation

• Variable rate planting:
  • For sandy soil
  • Shade zones: less plants per meter
  • Spray path: more plants per meter
  • Lutum content: more plants heavier clay soil
• available for Grimme, AVR and DeWulf
• Not standardised
Current situation
Steps/Phases in project

- To develop the current components into a robust webservice so it can run in 2020, plus validation
- To connect the webservice to participating user and machine platforms, plus validation in 2020
- Adoption: large scale implementation, monitoring and communication
Phase 1

• To develop the current components into a robust webservice so it can run in 2020, plus validation
• Product is the webservice prototype
  • Work mainly by WUR
  • Interaction with Grimme, AVR and DeWulf, Akkerweb and/or other user platform
  • Delivery end of 2019 or January 2020
Phase 2

- To connect the webservice to participating user and machine platforms, plus validation in 2020
- Product is prototype Multi-vendor VRA application
  - Work by WUR, Grimme, AVR, DeWulf, user platforms
  - Cost estimate to be made after the meeting (ca. 40 Keuro all parties, not (yet) included in the IoF budget)
  - Decision on how to share the costs
  - Delivery end of 2019 or January 2020
Phase 3

- Adoption: large scale implementation, monitoring and communication
  - Where
  - When (2021-2024)
  - How
  - What to monitor
Cooperation and implementation agreement

Warm Cooperation
• Starting from a will/ambition to make step further
• Participants meet and build personal relations

Cool Organisation
• Ownership, responsibilities of service & app organised in early stage
• Sharing of costs and budget to be organised in project setting