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ROBOTTI – autonomous field robot in various in-field applications

15/02/2024

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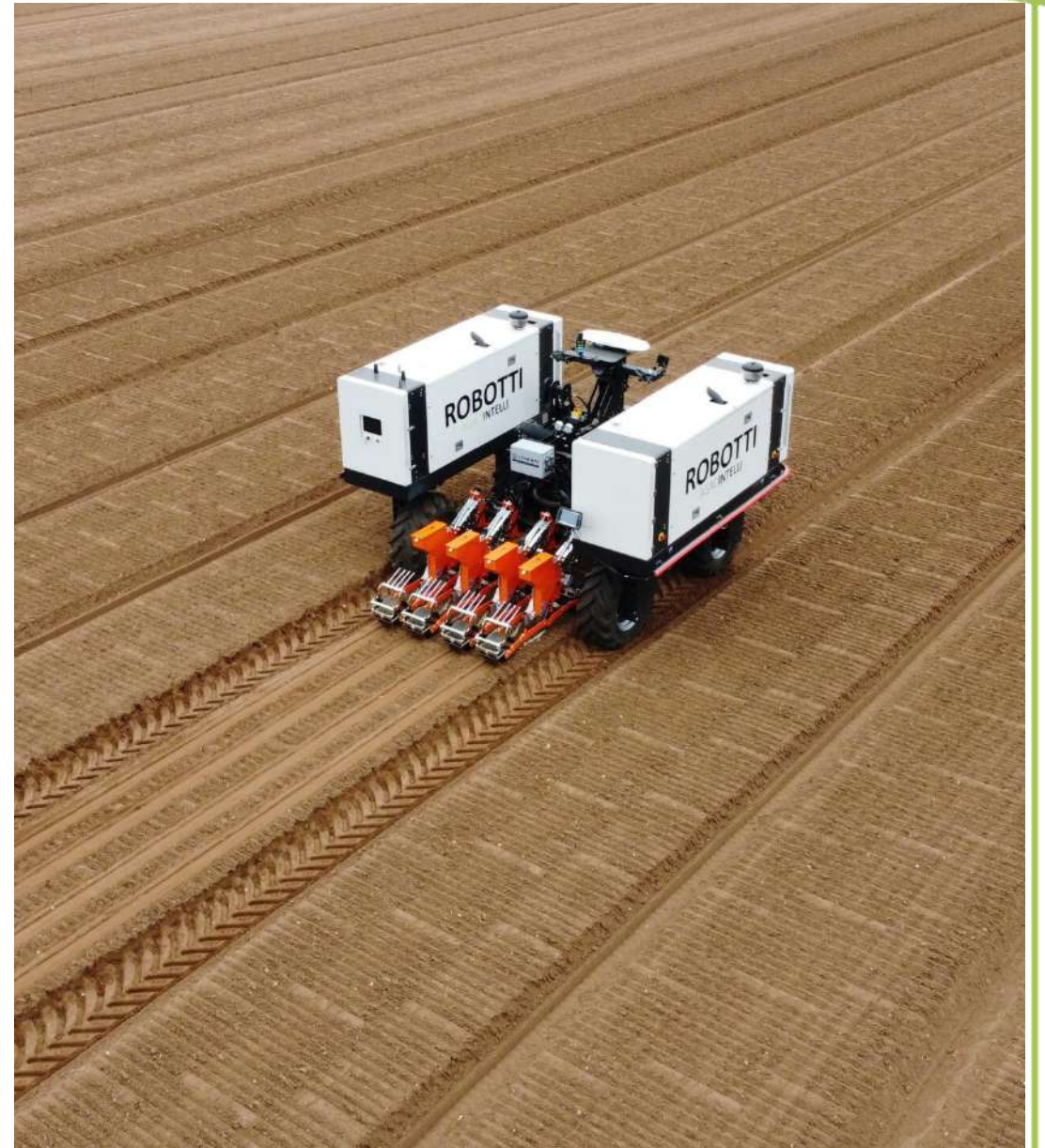
ROBOTTI

Our fully-automated farming robot enables high-value crop farmers to transition towards sustainable farming by reducing labour cost and adding an autonomous and precise capacity utilizing standard implements.

Robotization is instrumental in meeting these challenges by increasing efficiency and precision and ROBOTTI is pioneering this new solution.

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Precision

ROBOTTI drives more precise than human, enabling precise seeding and vision-based implements paramount for reducing cost, pesticide use and GHG emissions.

Reliability

ROBOTTI is built on high quality components and proven technology.

It performs the same task continuously without breakdown and with the same high precision each time.

Efficiency

ROBOTTI's remote supervision and autonomy allows for labour savings of up to 80%

Operational time up to 24/7.

Field intelligence providing virtual crop and fields monitoring and analysis for improved planning

Safety

ROBOTTI has redundant safety systems to keep the robot on track, monitor the surrounding, and react to unforeseen obstacles and situations





ROBOTTI History

2000-2010

- First ROBOTTI versions introduced in research projects

2010-2015

- The ROBOTTI project has taken over the Kongskilde A / S company

2015

- The Agrointelli company founded

2015-2018

- Innovation house for different AG technologies

2018-Present

- Focus on ROBOTTI production and sale activities



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ROBOTTI is autonomous tool carrier



- Operates autonomously



- Designed for precision farming



- Total weight 3 tons - significantly reducing soil compaction



- Accurate and precise RTK navigation



- Standard diesel engine & hydraulic



- Standard tractor 3-point hitch



- One of the most safe robots on the market





Working with existing
equipment / tools / implements

- Customize your working width – width is not adjustable
- Standard three-point hitch
- Mounting of existing implements on the Robotti tool carrier
- No specially designed implements are required
- Some tools need to be simply adjusted for optimal usage



Problems in agriculture – farmers' pains

- Uniform repetitive working conditions
- Lack of skilled labours
- Higher requirement for food safety and documentation
- Continual cost optimization
- Soil degradation

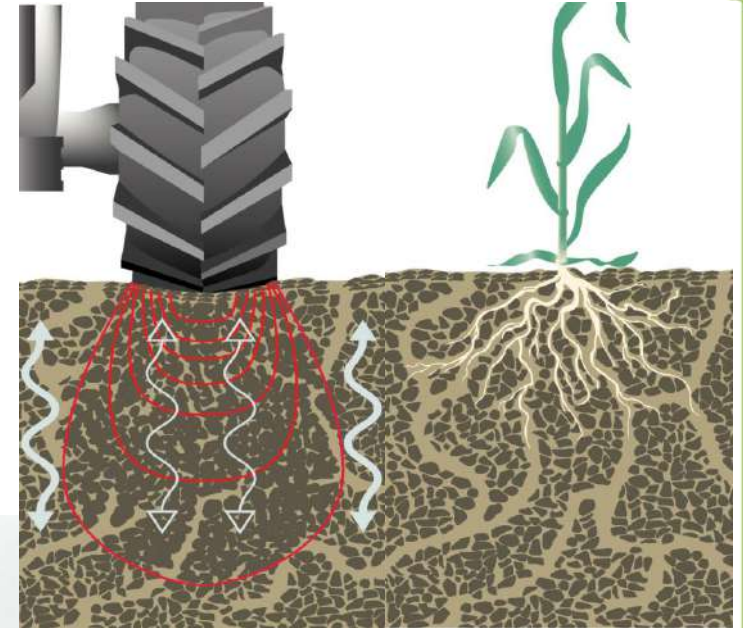
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Soil degradation – one of the biggest problems in agriculture

- Reduced water infiltration capacity
- Increased risk of erosion
- Less biodiversity
- Limited root growth
- Yield reduction





ROBOTTI means less soil compaction and degradation

- ROBOTTI weighs much less than a tractor. Only around 3 000 kg, which minimizes the risk of soil compaction.
- Non-compacted soil has a significantly lower risk of soil erosion and it has much higher water holding capacity.
- The light weight ROBOTTI enables also the farmer to start the season earlier, with e.g. early seeding and mechanical weeding during the early growth period. Both are key in optimizing yields.





ROBOTTI is the only agricultural robot that is compatible with standard implements enabling easy integration into an existing industry

- Compatibility with standard implements generates trust and credibility for easy adoption and accelerated market penetration
- ROBOTTI benefits from manufacturer's technological developments through digital integration with their implements

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ROBOTTI – Safety is most important

Safety system with:

- ✓ GPS based virtual fencing
- ✓ 3D laser scanner - LIDAR
- ✓ Pressure sensitive bumper
- ✓ Remote and online stop
- ✓ Only drives forwards
- ✓ 5 emergency stop buttons
- ✓ Off track monitoring, with wheel slip surveillance and getting stuck avoidance system



One of the safest robots on the market

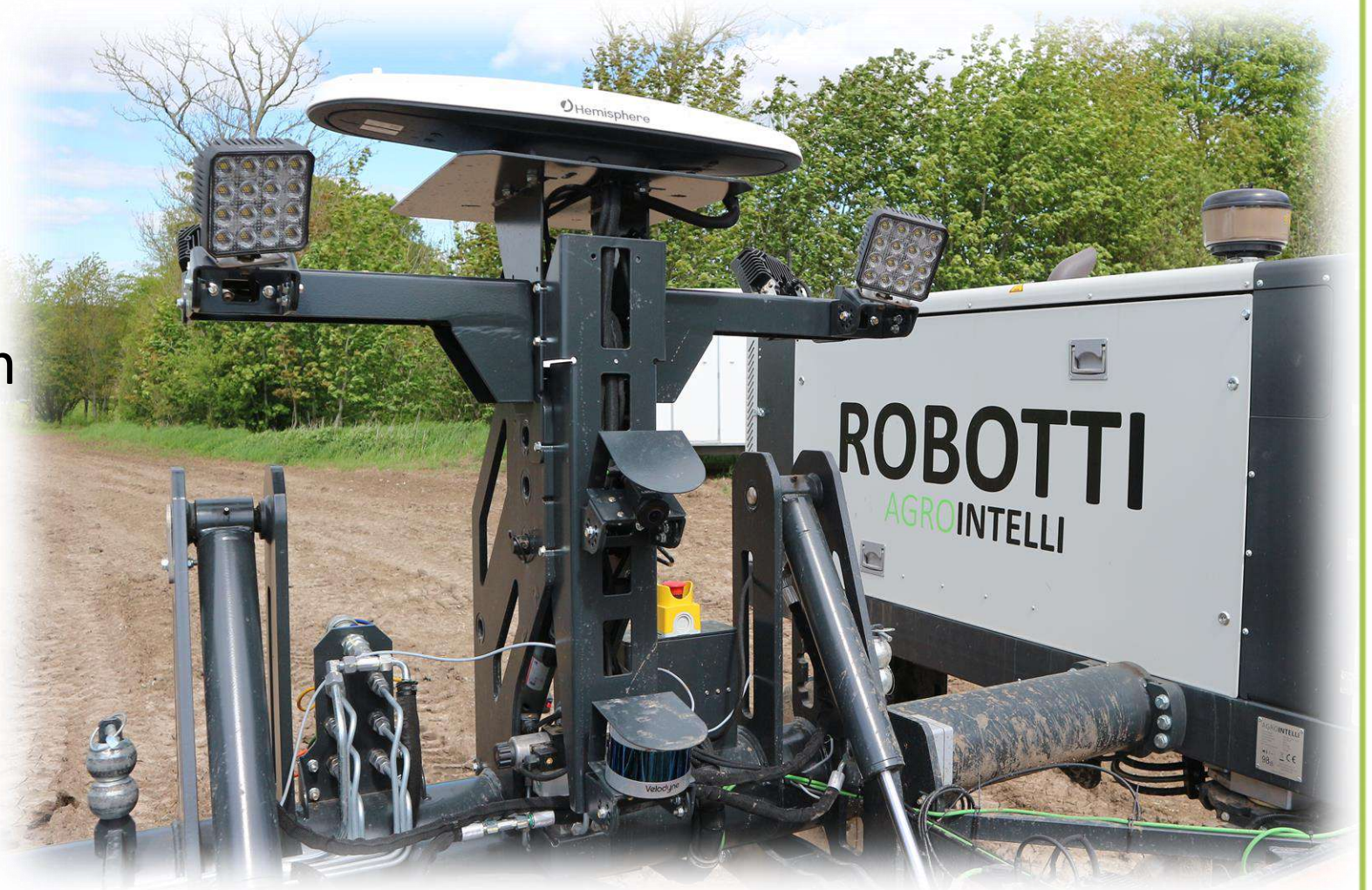


The highest precision in field application

- Data transfer from existing RTK systems
- Field boundaries
- RTK accuracy +/- 2 cm

Customer needs:

- RTK-GPS-subscription
- SIM card with data





Data collection by ROBOTTI



Farm Management

- **FrontEye/RearEye Camera**
 - Management data
 - Safety
 - Implement data
 - Row guidance
 - Real time application





For farmer & Scientist

Data from images

- **CropEye Camera**
 - Soil
 - Weed
 - Crop growth
 - Quality of jobs





Virtual Filed Walk – CROP EYE



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Virtual Filed Walk – CROP EYE

AGROINTELLI Robotti Live Create Plan **View Plans** Guide EN- User 1 -

Filter Options < Map Satellite

Fields - Rougers <
Plans - K.U.L.T 5 Row Hoe <
Operations >

2022-07-30 09:04:25 - 11h 31min

Operation overlay
Coverage

Virtual field walk
 Show all image markers

cropeye2
cropeye3


Tasks Select All

Task 1
Start 2022-07-30 09:04:25
Finish 2022-07-30 09:05:49
Covered area 0.01 ha

Task 2
Start 2022-07-30 09:06:17
Finish 2022-07-30 10:17:07
Covered area 0.71 ha

Task 3
Start 2022-08-01 07:47:52
Finish 2022-08-01 09:11:09
Covered area 0.82 ha

Task 4
Start 2022-08-01 09:26:26
Finish 2022-08-01 18:23:44
Covered area 5.17 ha



Name: 5bf762de-9f2d-4614-86c3-8340c7582732
Lat: 52.028543559705785 Lng: 11.260049697742612
Download



- **CropEye Camera**

- The pictures show lots of details.
- Easy to recognize the weeds.

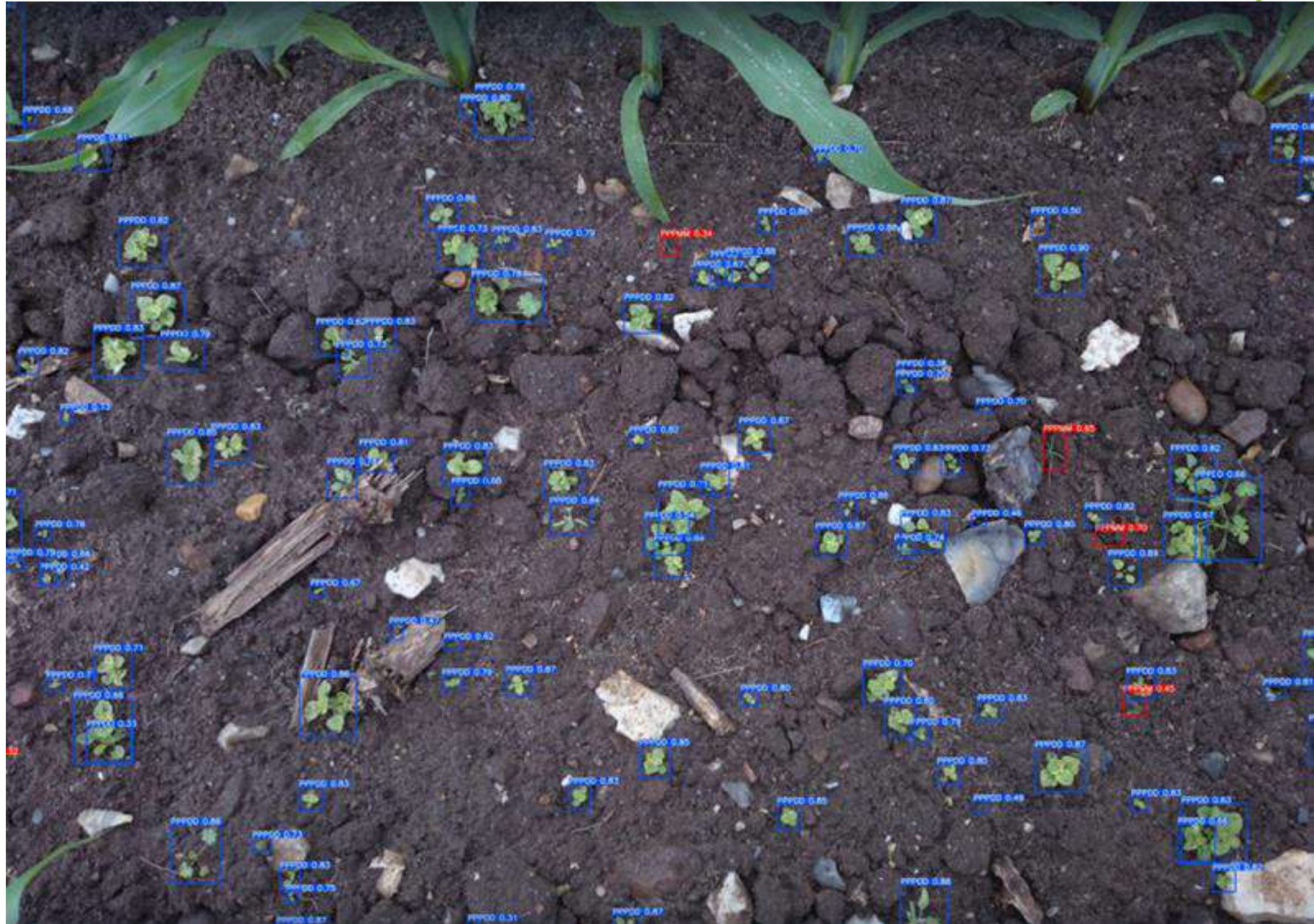




ROBOTTI Field mapping

Using high-res camera setup for field mapping of

- crop growth status
- weeds species and population





- Weed
 - Monocot/dicot mapping
 - Dual weed mapping for bandspaying
 - Map for weed species
- Crop
 - Growth stage
 - Crop species
 - Crop coverage
- Soil
 - Crop/soil index
 - Soil profile
 - Crop residue for soil tillage

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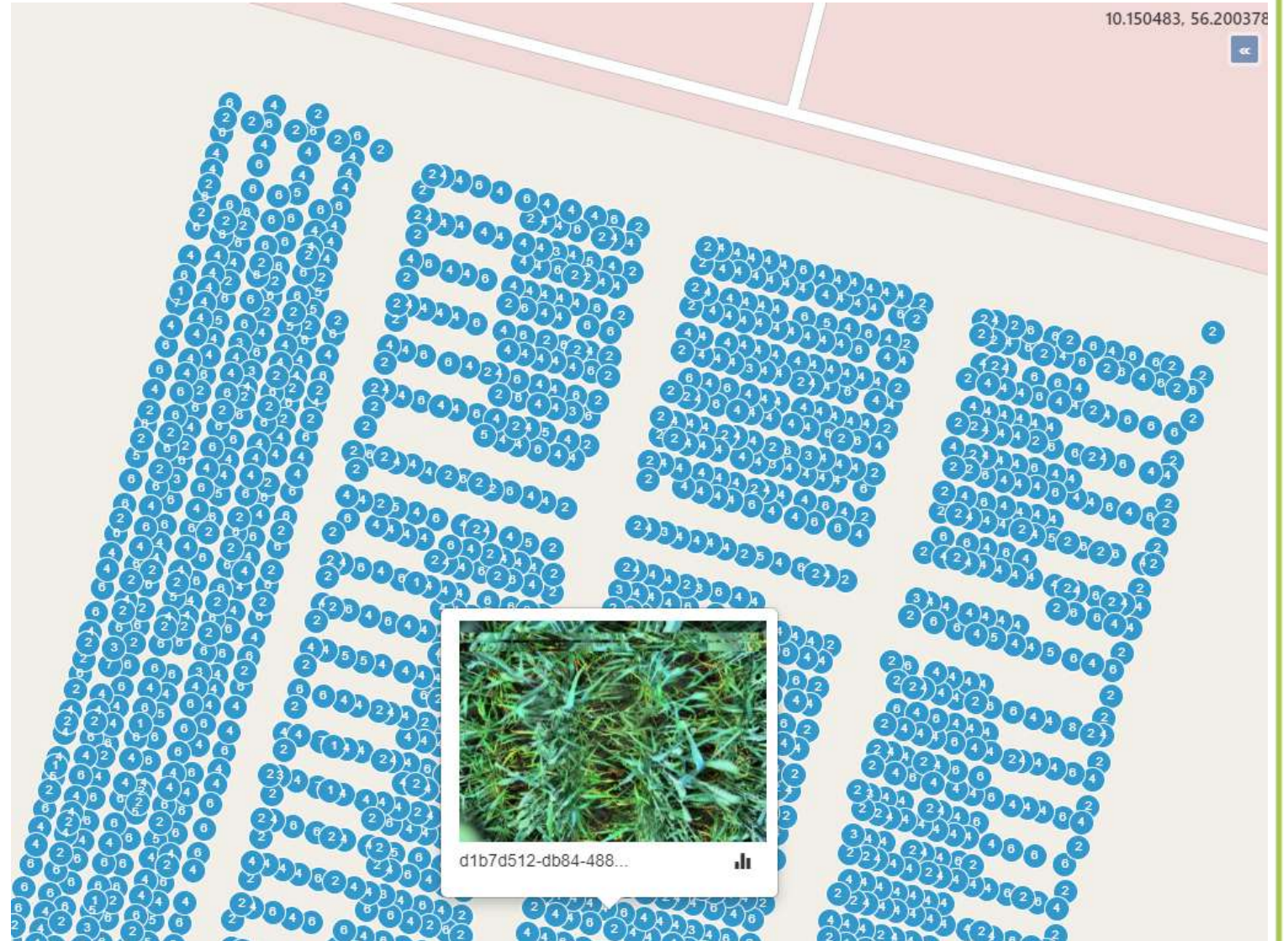
RoboWeedMaPS Field Files Upload Tools

Services Valuebased Data

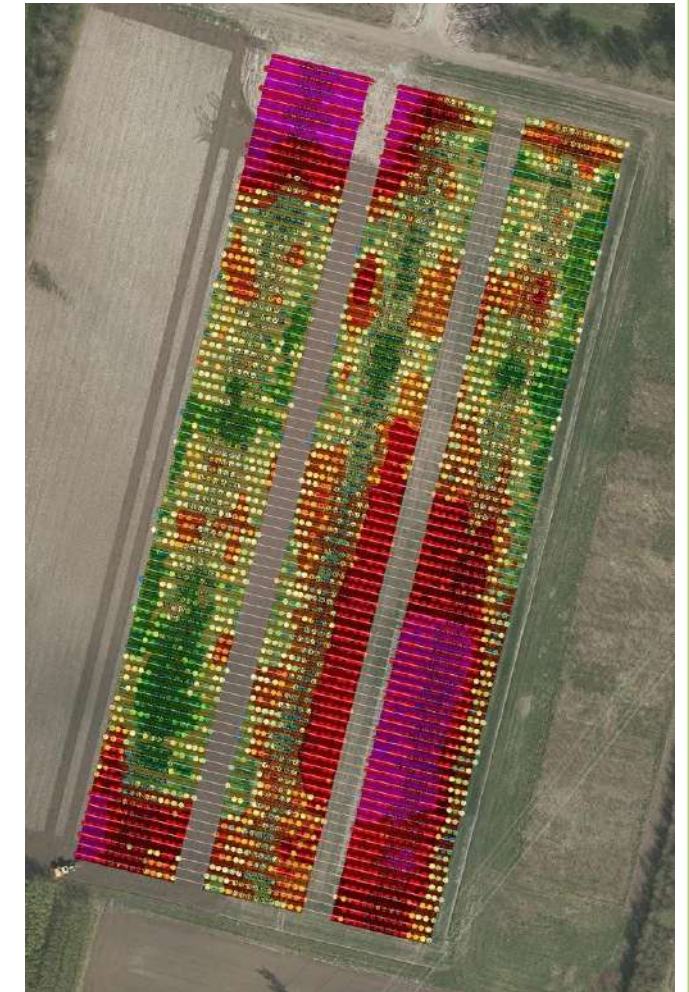
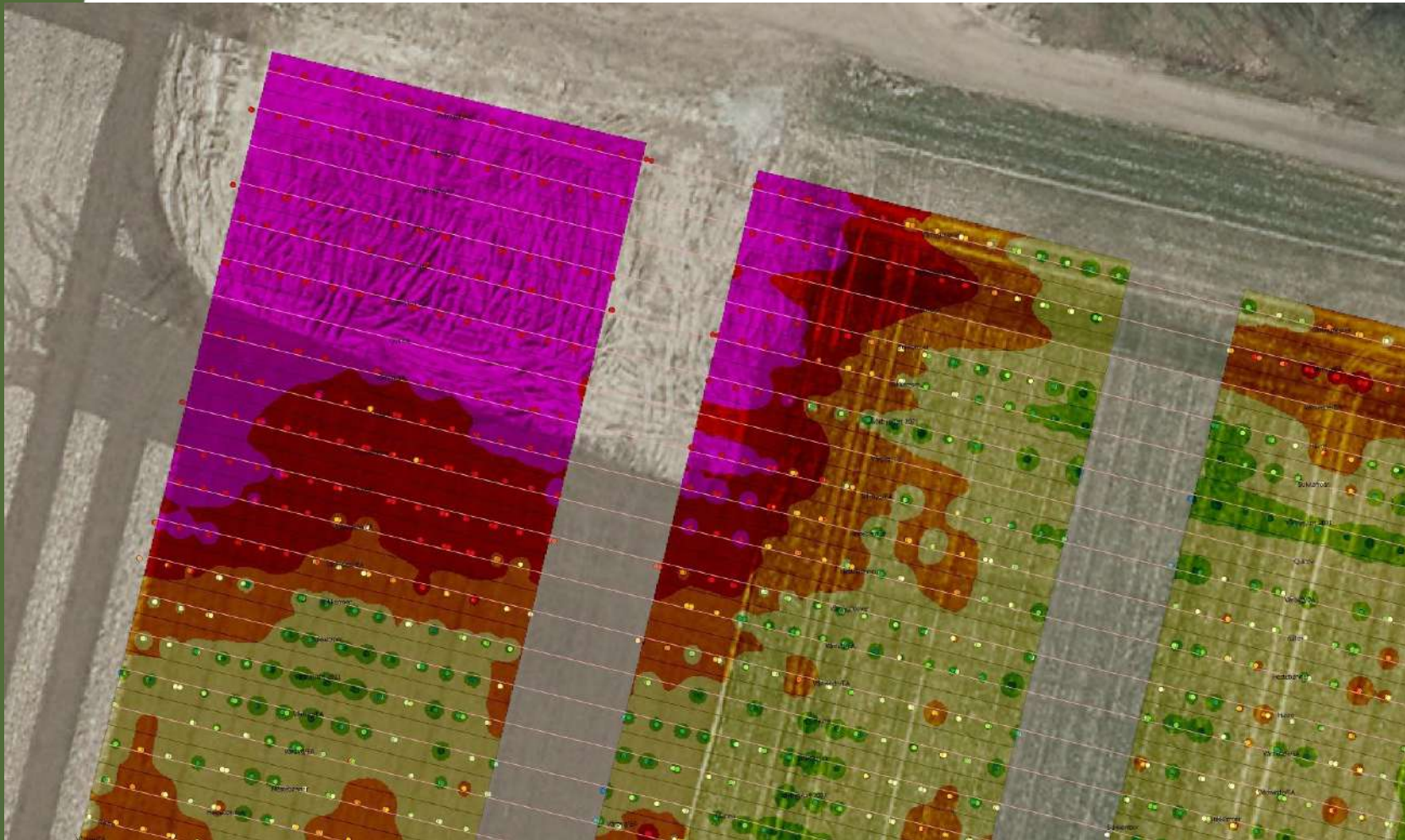
Kattegat
Arhus
Tranbjerg
Arhus Bay
Hesselo Bay
Helsingør
Helsingborg
Hillerød
Fredensborg
Frederiksværk
Frederikssund
Birkeroed
Kongens Lyngby
Gentofte
Copenhagen
Hvidovre
Tårnby
Isefjord
Sjælland
Ballerup
Roskilde
Viby
Køge Bay
Køge
Vissenbjerg
Odense
Langskov
Bellinge



Data assessment **Crop data**



Data assessment **Weed maps**



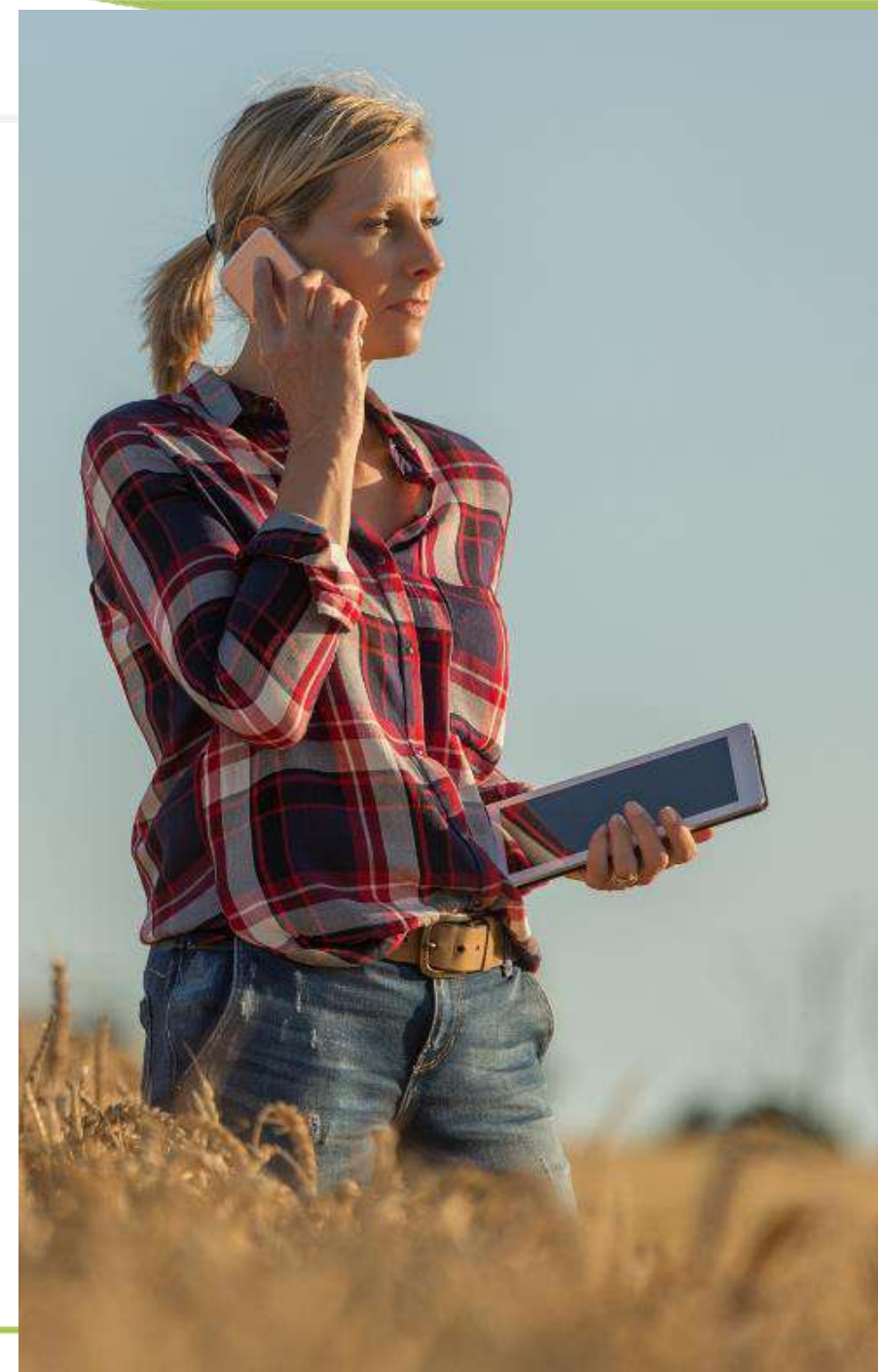






Who is the future food producer?

- Age: 30-50 year
- Gender: Male & female
- Origin: Global
- Education: Farmer / Agronomic / Business
- Need: Profitable business
- Pain: Lack of reliable workforce
- Objective: Cost efficient production





Thank you for your attention!

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