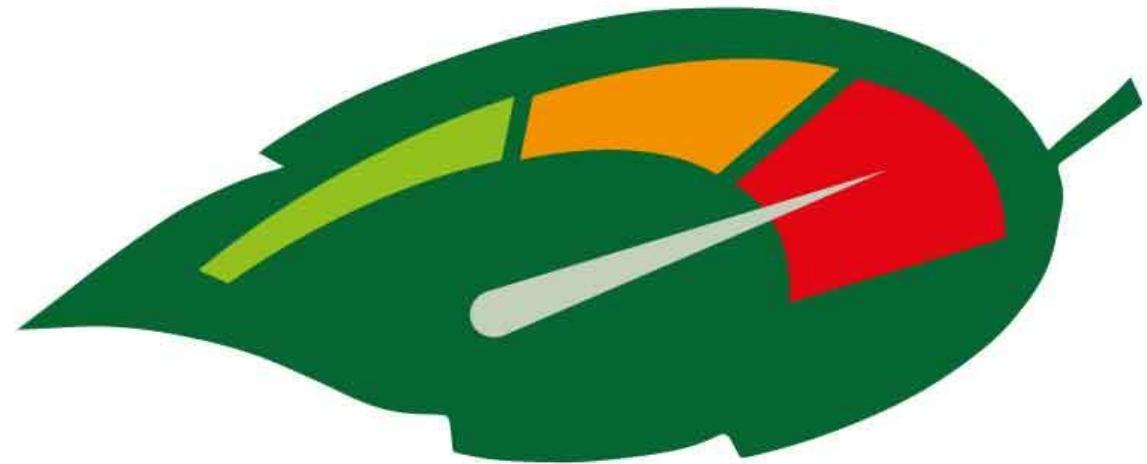


BigData, AI &
Robotics

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RAPAGRA
PLANT HEALTH CHECK

Mission

We reduce crop loss & increase yields for farmers while minimizing usage of chemicals, fertilizer and water.

We keep the farmers to farm and work with nature.



Case 1

Each year farmers apply millions of tons of manufactured fertilizer, of which 40-80 percent is lost to the environment.

(USDA, The nutrient challenge 2023)

Rapagra will improve timing of spraying and effectiveness



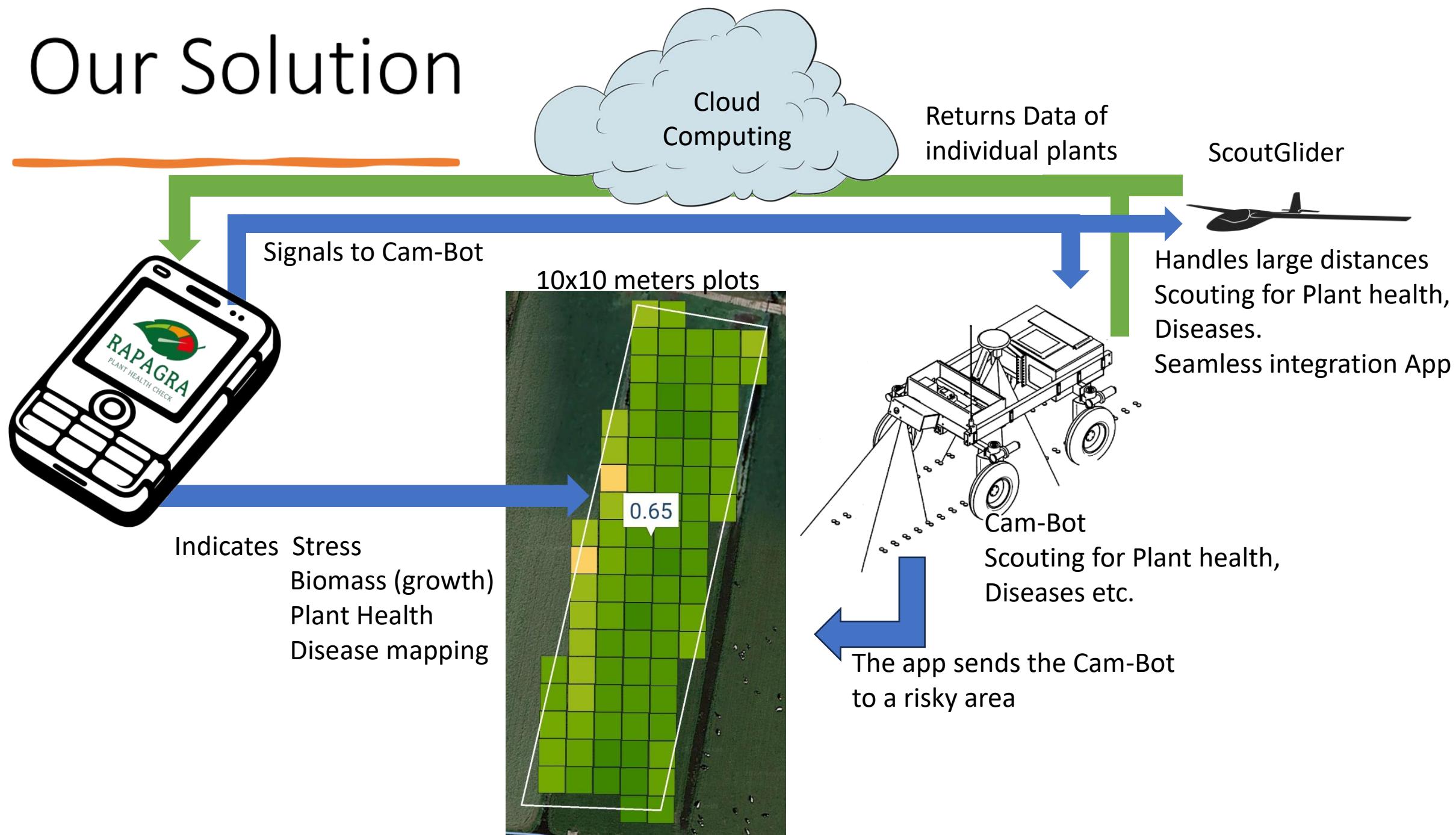
Case 2: Coffee Berry Disease

Coffee Berry Disease (CBD) is caused by a fungal plant pathogen (*Colletotrichum Kahawae*) in Arabica Coffee. If not detected and treated correctly and quick, it may cause 90% yield loss. Use of copper fungicides or removal are main solutions.

(MSU College of Agriculture, Michigan)



Our Solution



In a nutshell

The **app** gives recommendations on:

- Fertilizing
- Spraying
- Irrigating

Leading to higher yields and lower costs

- The **Cam-Bot** and **ScoutGlider**
- Singling out the weak plants
- Monitoring Digital Twins
- Plant-based recommendations



Why Rapagra?

- Scalable App with no additional IoT
- Complementary Scouting Robot driving in the night for field data on Coffee fields
- ScoutGlider for large fields
- Dynamic & Tailored recommendations to improve health & increase yields
- Forecasts impact of diseases in early stage
- Meshing data like Satellite, Drone, Meteorological, Soil & Plant-specific Data



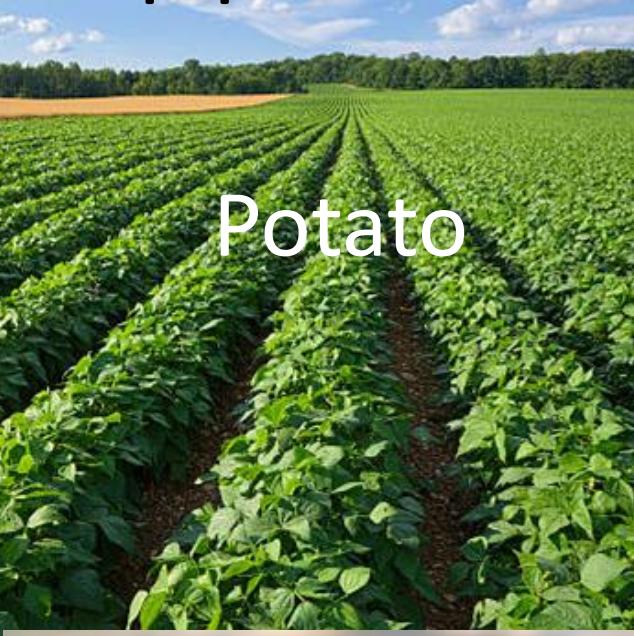
Crops available in the app



Wheat



Arabica
Coffee



Potato



Asparagus



Green Lentils



Chilli



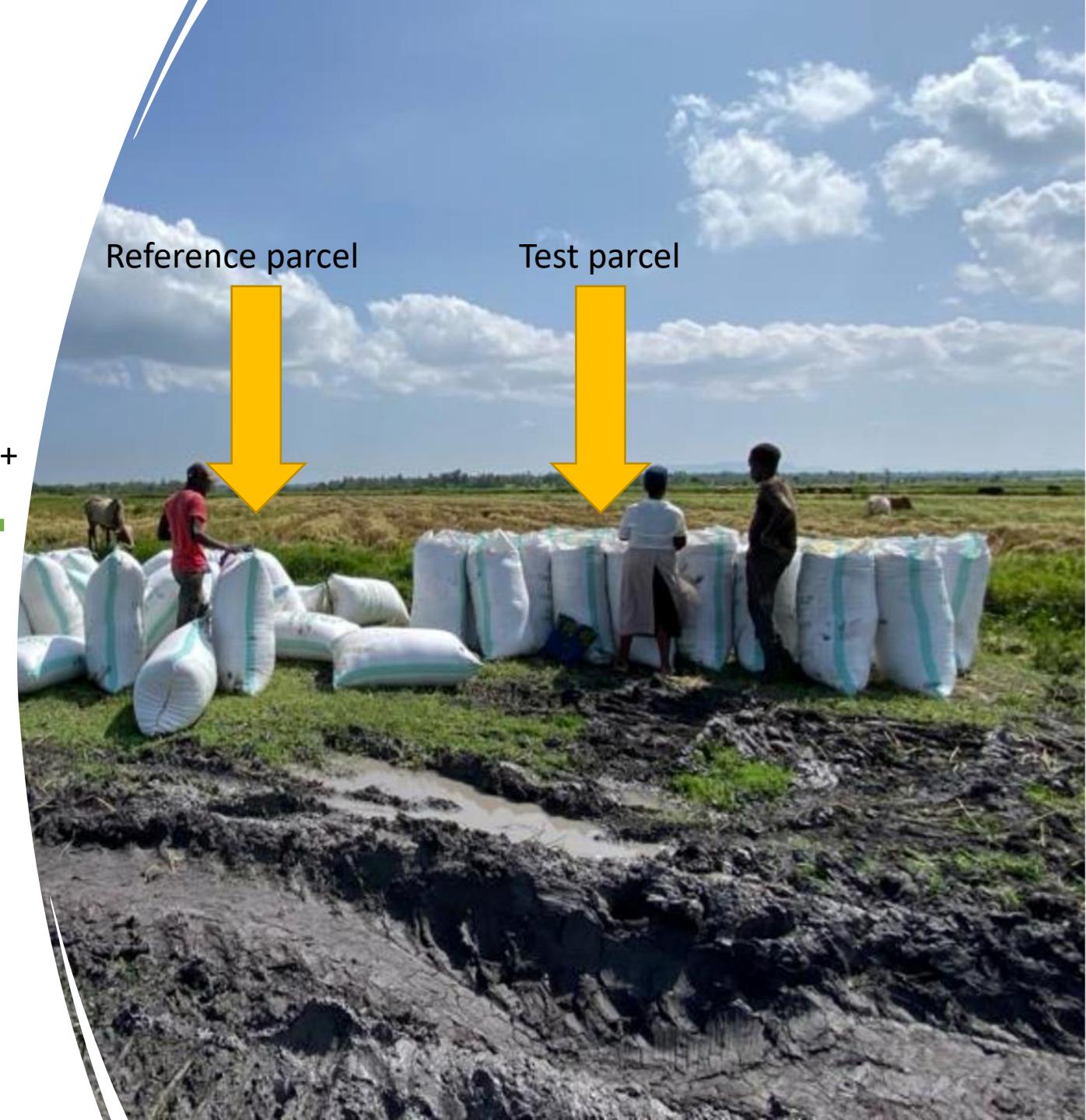
Cucumber



Sugar Beet

Impact

	APP	APP+CamBot + Glider
• Direct cost 	20-30%	30-40%
• Indirect cost 	15-30%	25-40%
• Yields 	10-20%	15-35%
• Toxics 	5-30%	15-35%
• Nutrient efficiency 	10-25%	20-45%
• Water efficiency 	20-40%	30-50%
• Labor costs 	10-20%	40-60%



Why Other remote sensing?

- Irregularity of satellite data
- Plant health & disease monitoring per plant
- Field data need (temp/humidity etc.)
- Images under the (vulnerable) leaf and stem with CamBot
- Day-2-Day images from fields where risk is higher for diseases
- App=10x10m; Glider=2x2m; CamBot=0,5x0,5m



App Successes



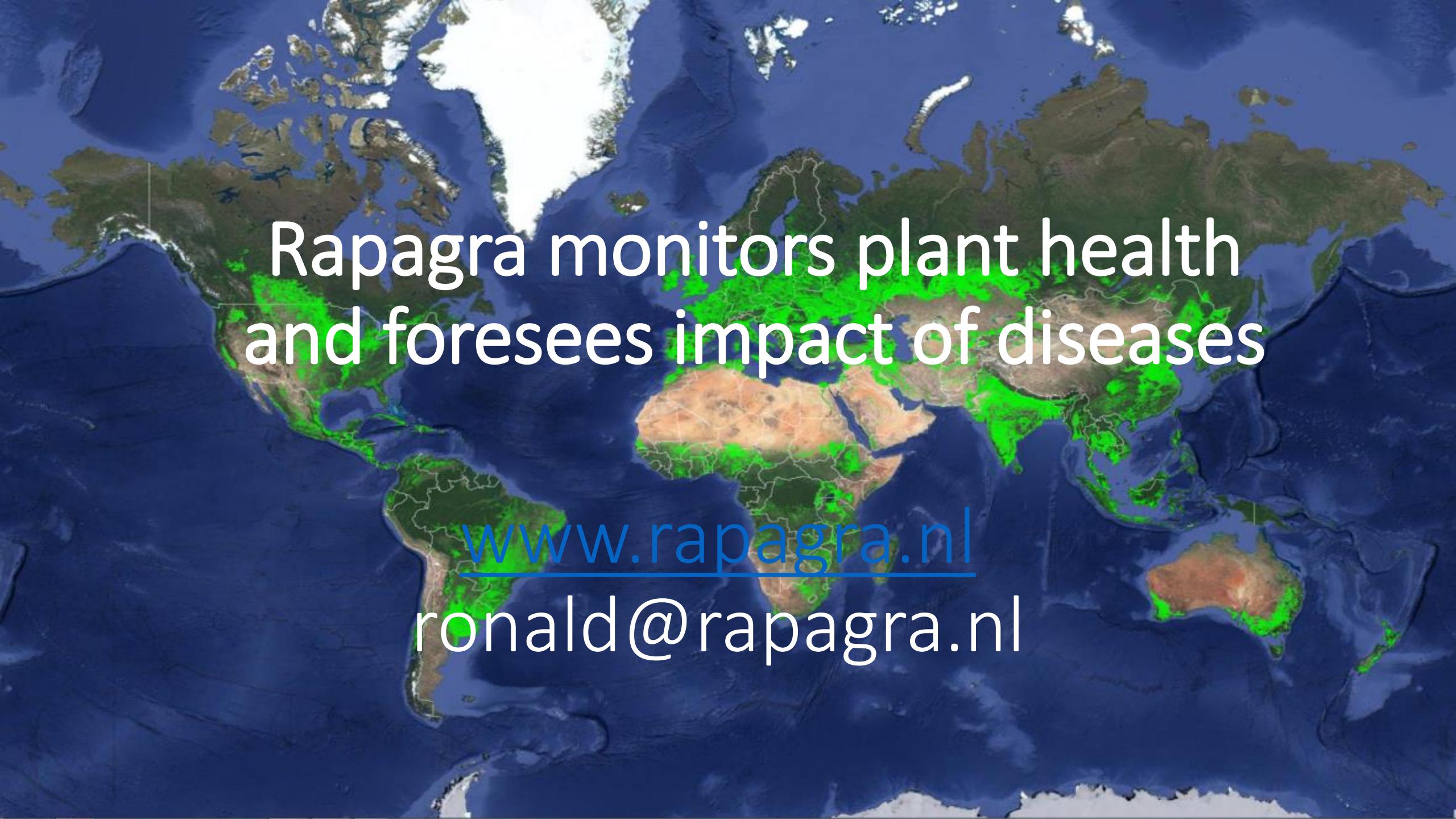
Kenya:

- Yield increase 25% on rice 32 bags reference and 40 bags Rapagra app-managed



Bangladesh:

- Decrease in cost for diseases by 44%
- Yield increase 50% on potato



Rapagra monitors plant health
and foresees impact of diseases

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