

Prototyping a remote sensing decision support tool for grassland monitoring in Southern Belgium : versatile features to meet the diversity of farmers' practices

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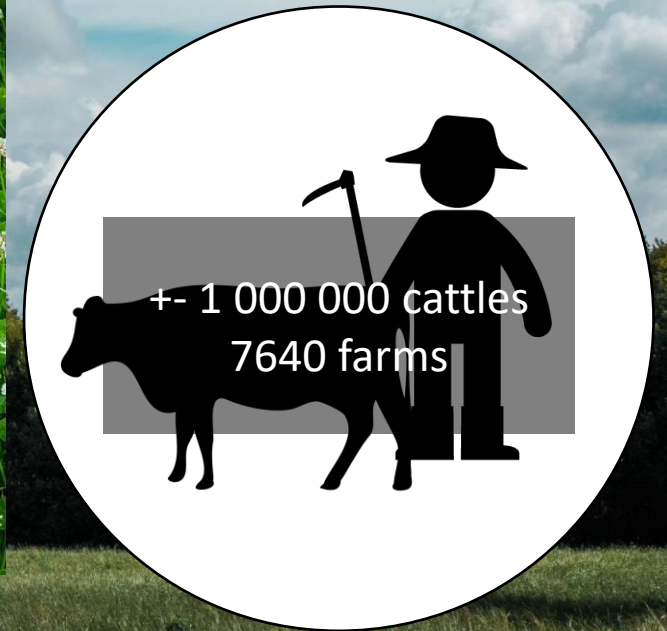
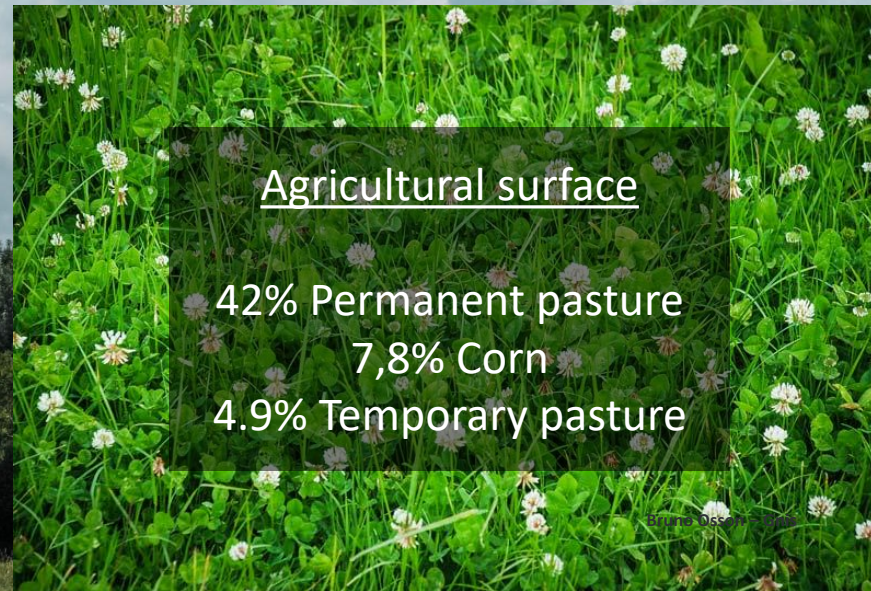
ICAR meeting 2023, 21-26th May



Le projet **WALLESmart**



Wallonia : context



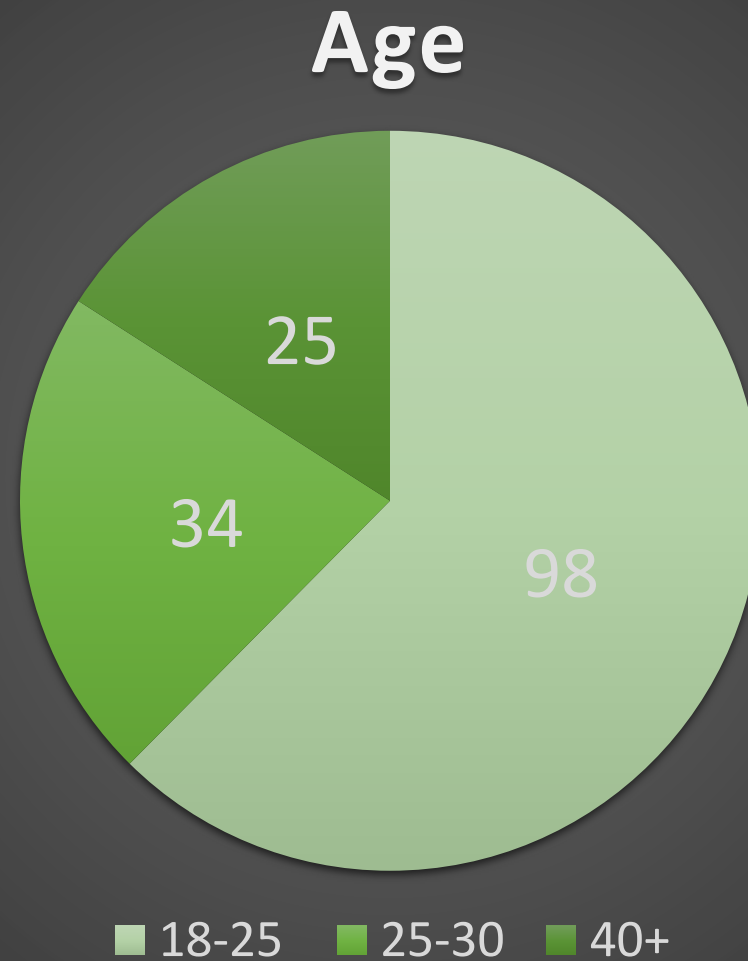
Statbel (Office belge de statistique), 2021. Chiffres clés de l'agriculture 2021. L'agriculture belge en chiffres. Statbel : Bruxelles, Belgique.

General workflow

**General pasture
DST survey**

DST : Decision support tool

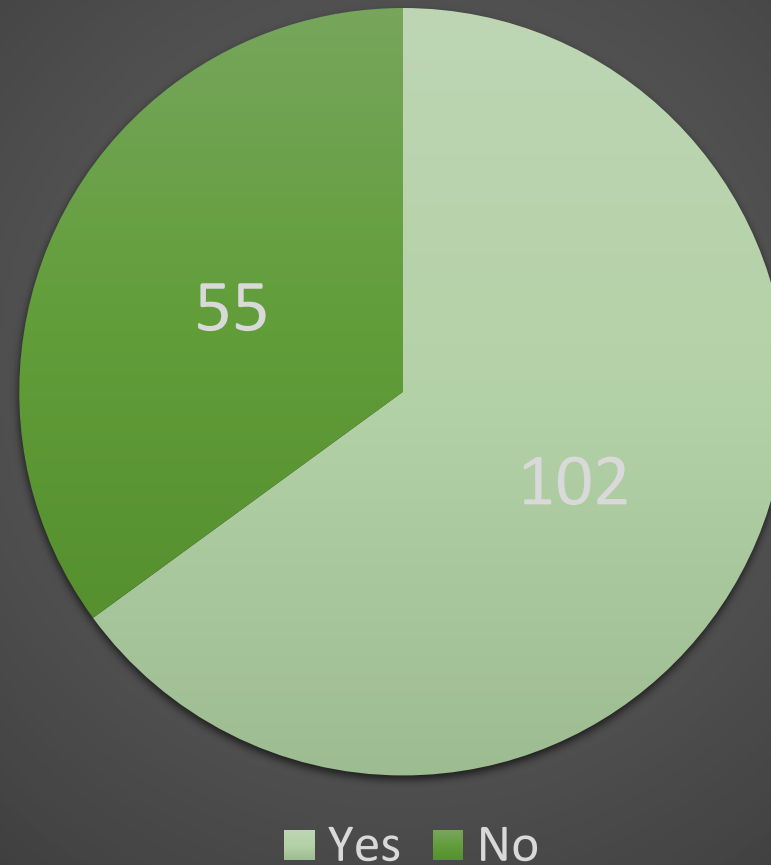
Farmer's interest : Survey results



L. Penasse
A. Bughin
T. Lefèvre

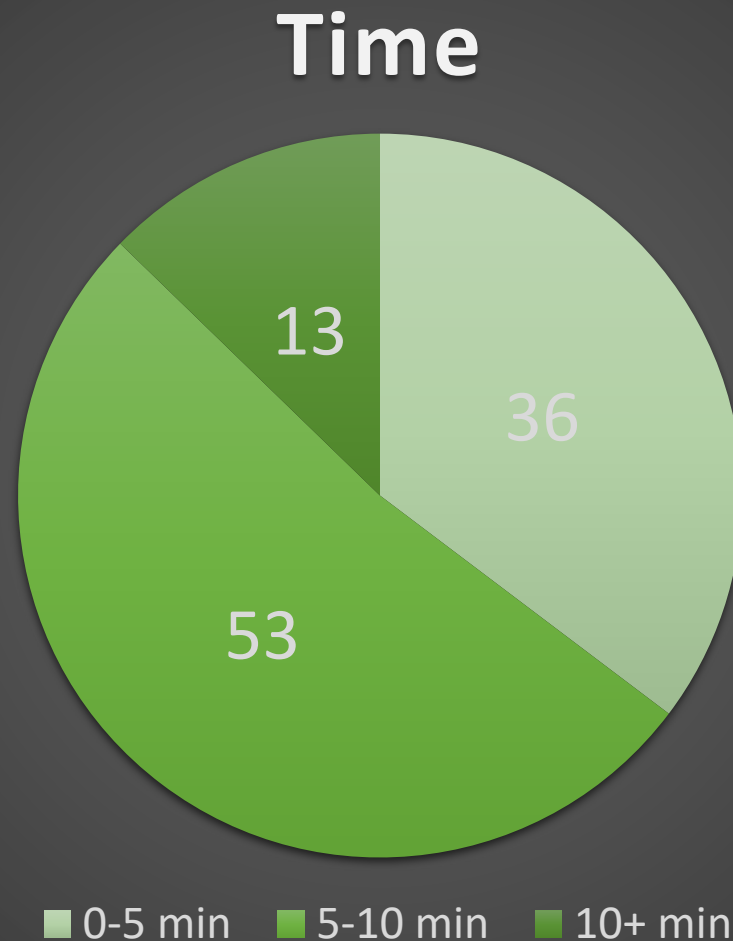
Farmer's interest : Survey results

Interest



L. Penasse
A. Bughin
T. Lefèvre

Farmer's interest : Survey results



L. Penasse
A. Bughin
T. Lefèvre

General workflow

**General pasture
DST survey**

**Functionnal
analysis**

A diversity of grass management practices

D. Mathy

Dairy

Stripped

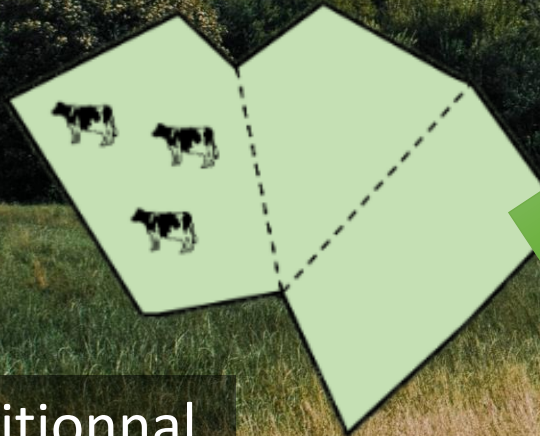
Rotationnal

Mixed Practices

Traditionnall

Continuous

Suckler



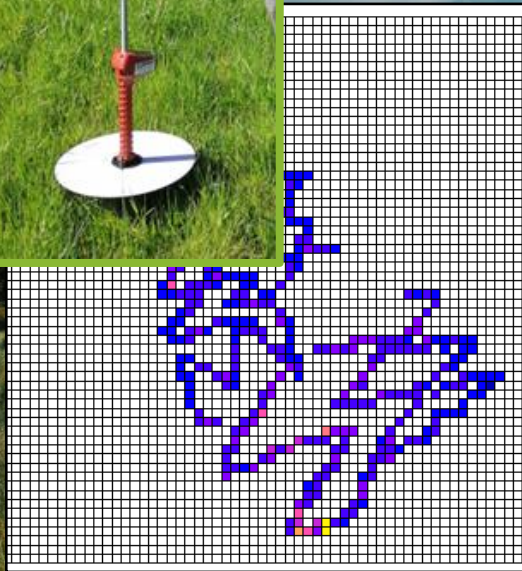
General workflow

**General pasture
DST survey**

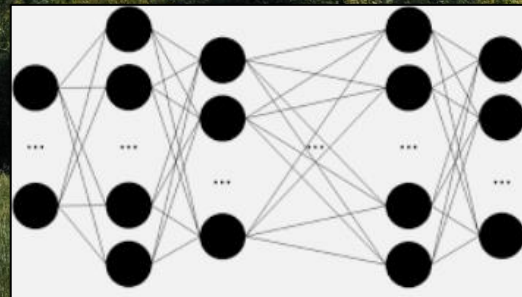
**Functionnal
analysis**

**Ressources
assessment**

Ressources : estimation of the Compressed sward height



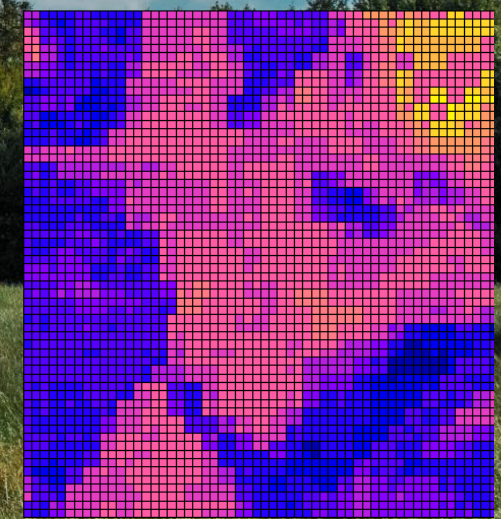
Compressed sward height (CSH) measurements



C. Nickmilder et al. (2019)

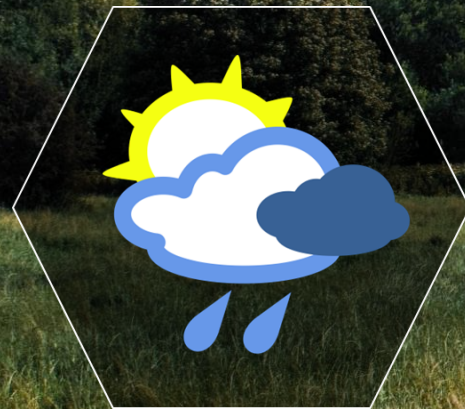
Error : ~20mm

Resolution : 10m/10m

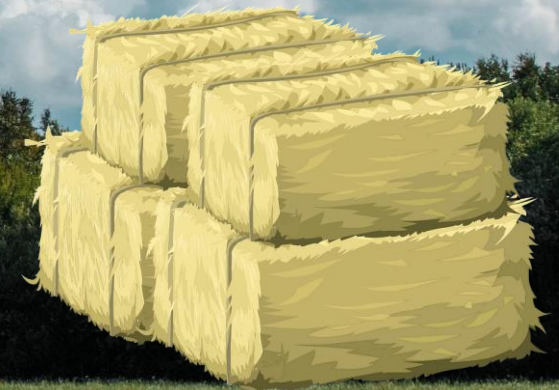


CSH estimation

Ressources : Database



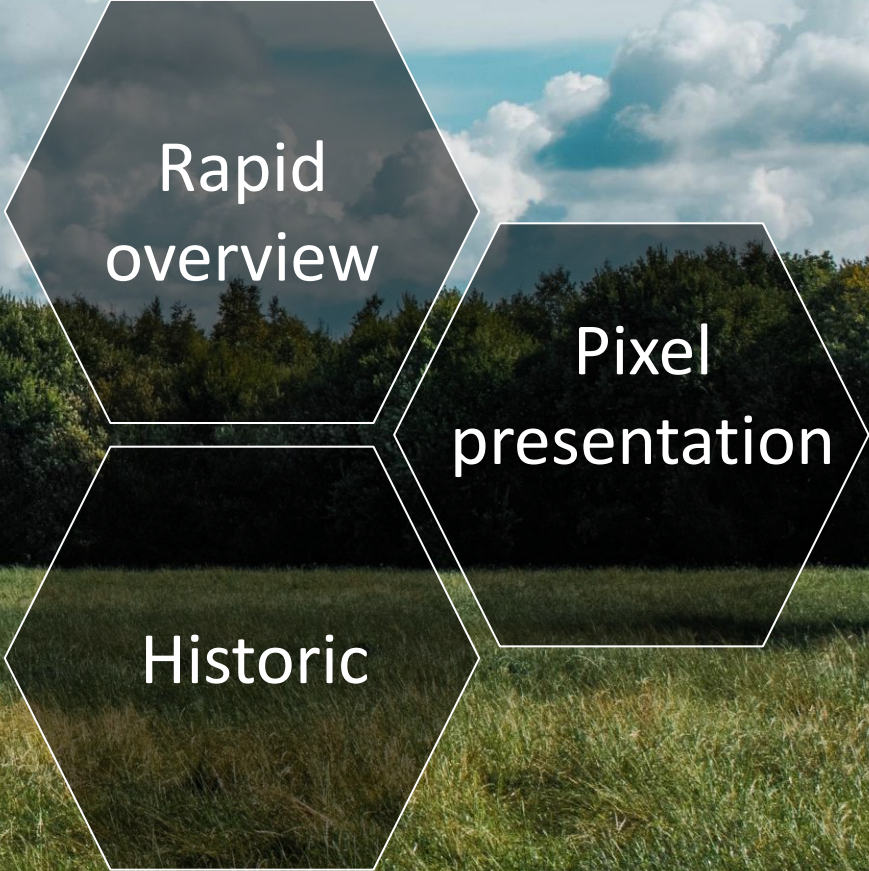
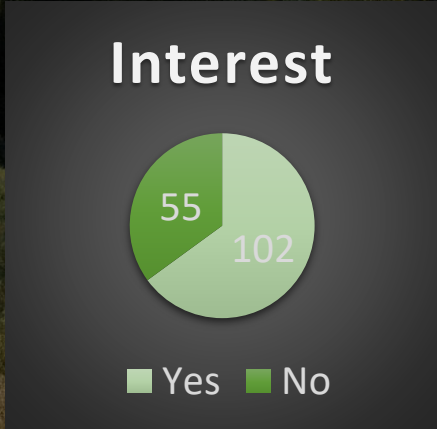
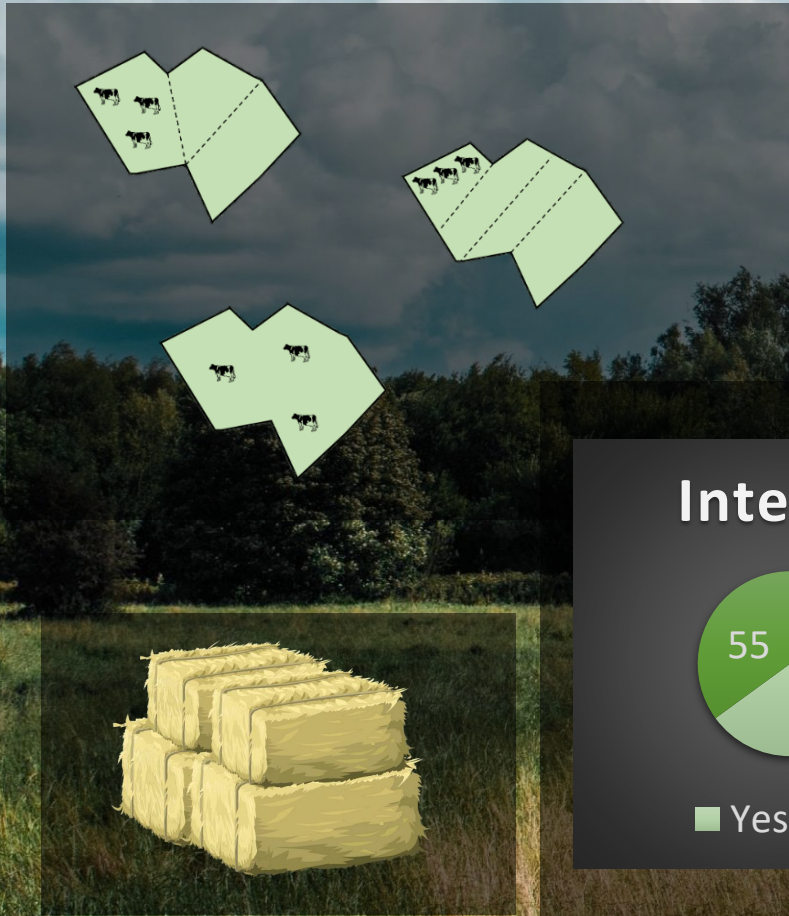
Linear equation



Biomass estimation (kg of DM/ha)

C. Nickmilder et al. (2023)

From a diversity of practices and resources to the functionalities



General workflow

**General pasture
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**Functionnal
analysis**

**Ressources
assessment**

**Backend
construction**

**Frontend
construction**

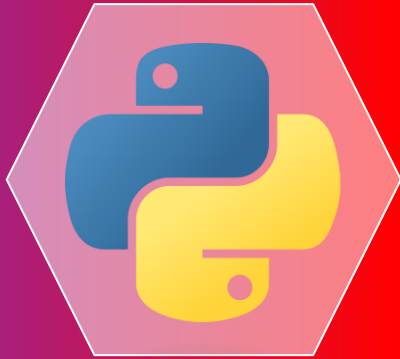
**Backend-Frontend
Linkage**

Decision Support Tool development

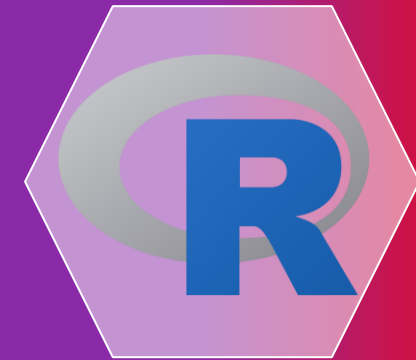
Frontend

Json request

Backend



S. Van Laeken
D. Maillard
J. Hendricks



K. Dichou

Json response

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Backend-Frontend
Linkage

Implementation

WALLeSmart : Smart farming cloud platform

A. Roukh et al. (2020)

The screenshot displays the WALLeSmart web application interface. At the top, there is a navigation bar with links for 'PROJET', 'PARTENAIRES', 'PLATEFORME', 'FINANCEURS', 'CONTACTER', and a red 'S'IDENTIFIER' button. The main content area features a search bar with the text 'Meilleure correspondance' and a search icon. Below the search bar, there is a 'Tendance' section with four application cards: 'PhénoBlé' (Mine Roukh, 3 stars), 'Karyon' (Mine Roukh, 5 stars), 'CéciBlé' (Fab Nolack, 7 stars), and 'Pameseb' (Fab Nolack, 1 star). A 'Récemment ajouté' section below shows four 'Nouveau' application cards with the same icons. On the left, a dark sidebar menu contains options: Explorer, Applications, Parcourir, Chercher, Données, Utilisateurs, Utiliser, Fournir, and Autorisations. A category filter is open, showing a list of categories with checkboxes: Tout (checked), Gestion, Laitier, Prévoir, Recadrer, Bétail, Surveillance, Temps, Analytique, Lait, Irrigation, and Imagerie par satellite.



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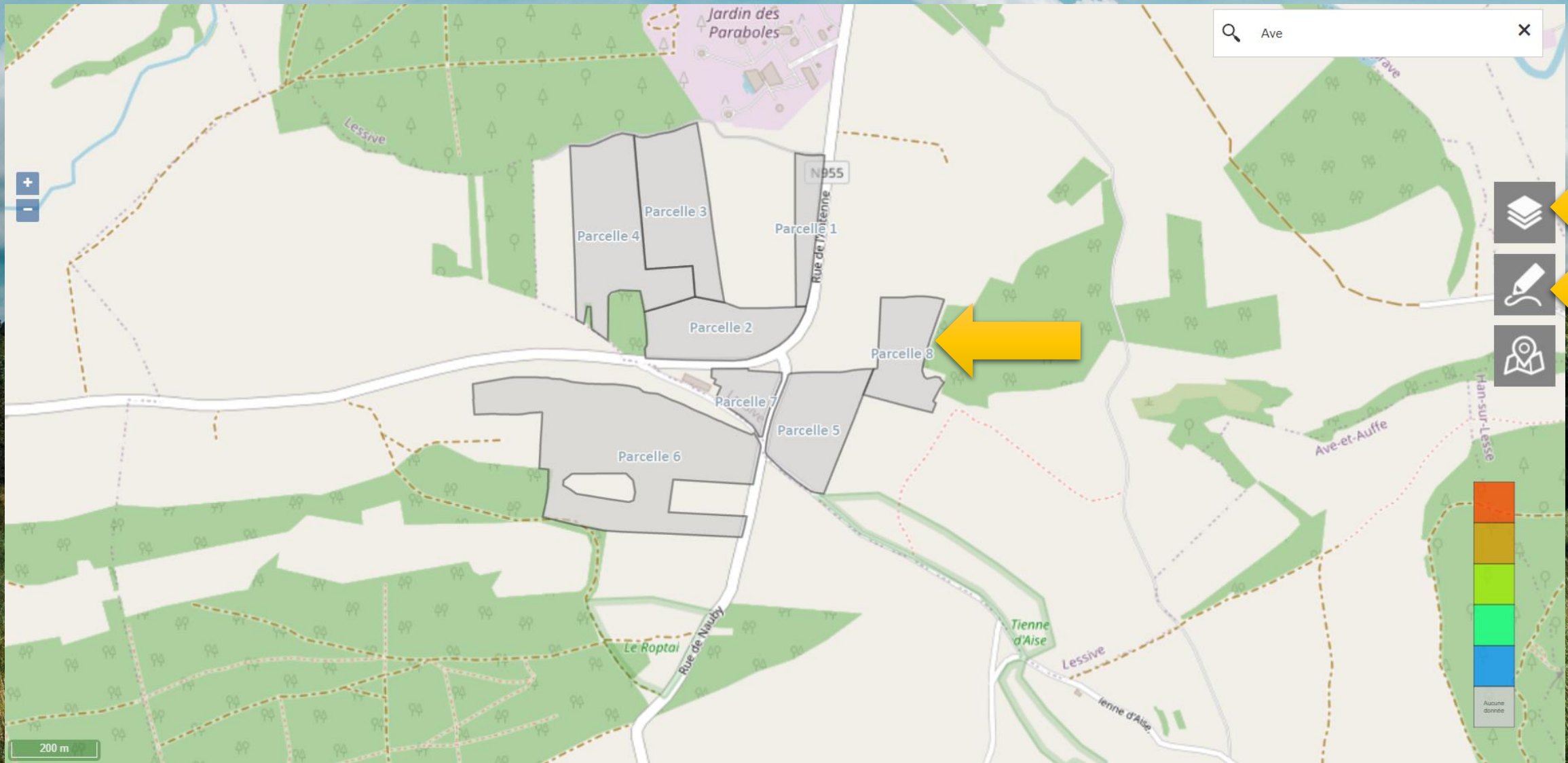
Frontend
construction

Backend-Frontend
Linkage

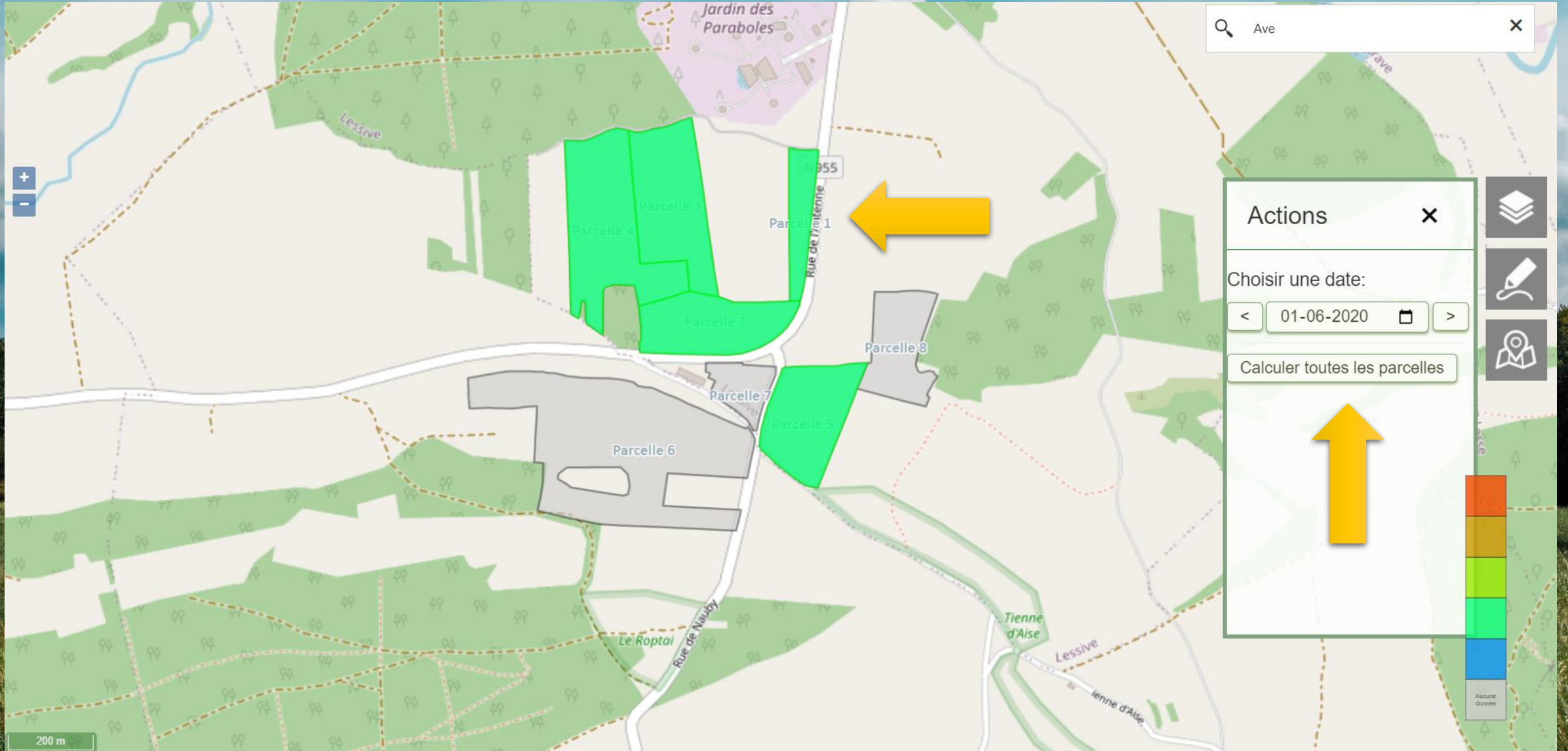
Implementation

Prototype testing
phase

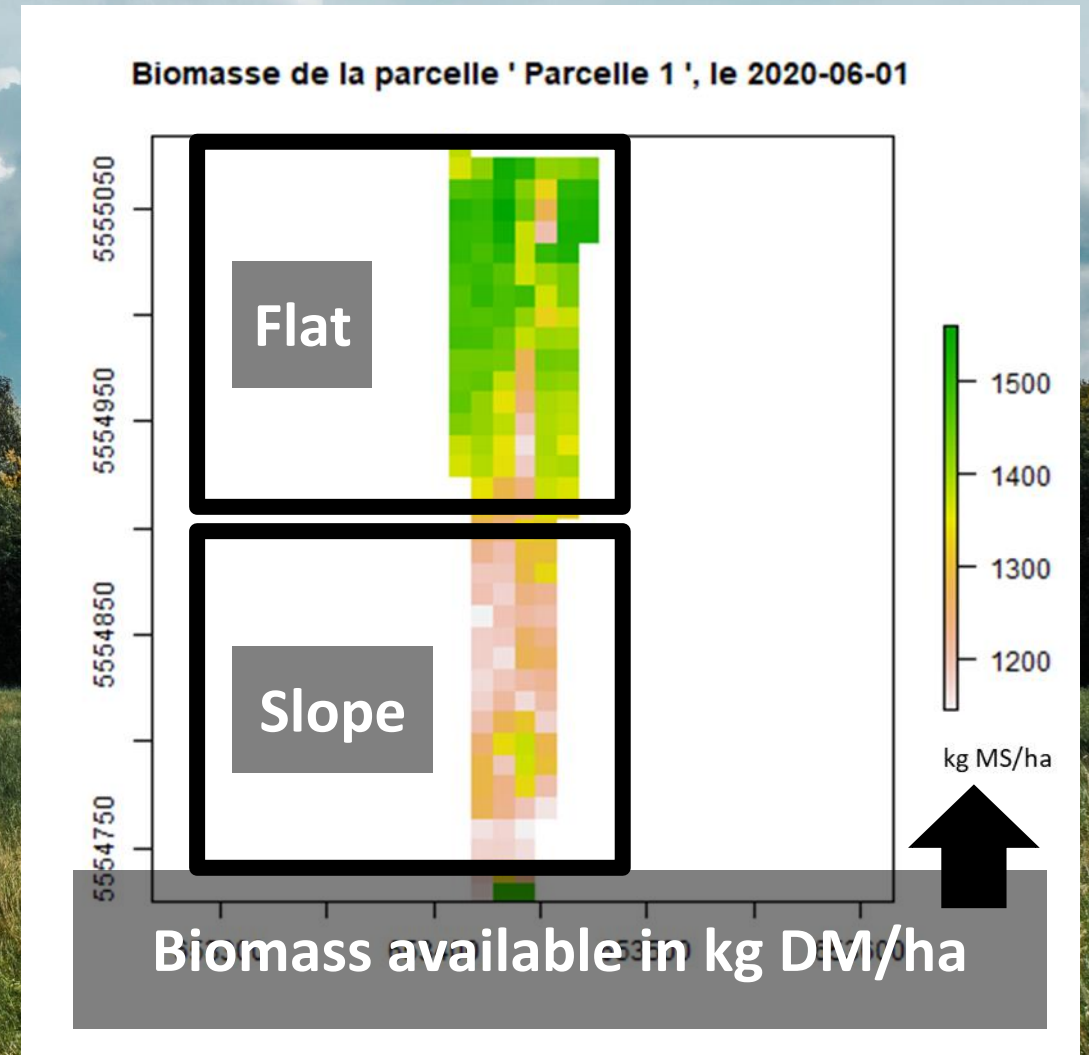
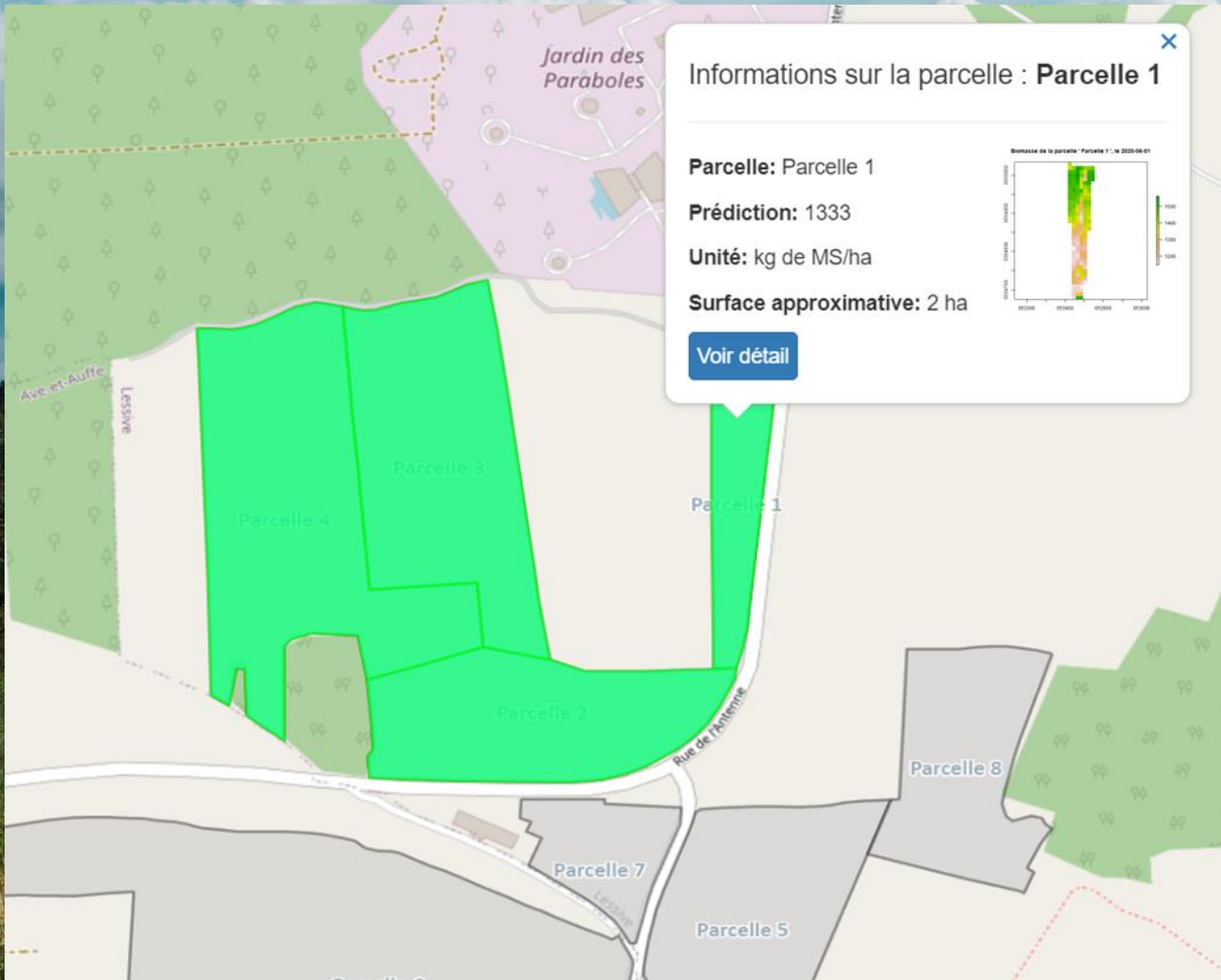
Tool 1.0



Tool 1.0



Tool 1.0



Collaborative improving

1 to 1 interviews



K . Dichou

Focus group



D. Mathy

Conclusion



Special Thanks



Wallonie



Le projet **W**ALLeSmart



UMONS
Université de Mons

