

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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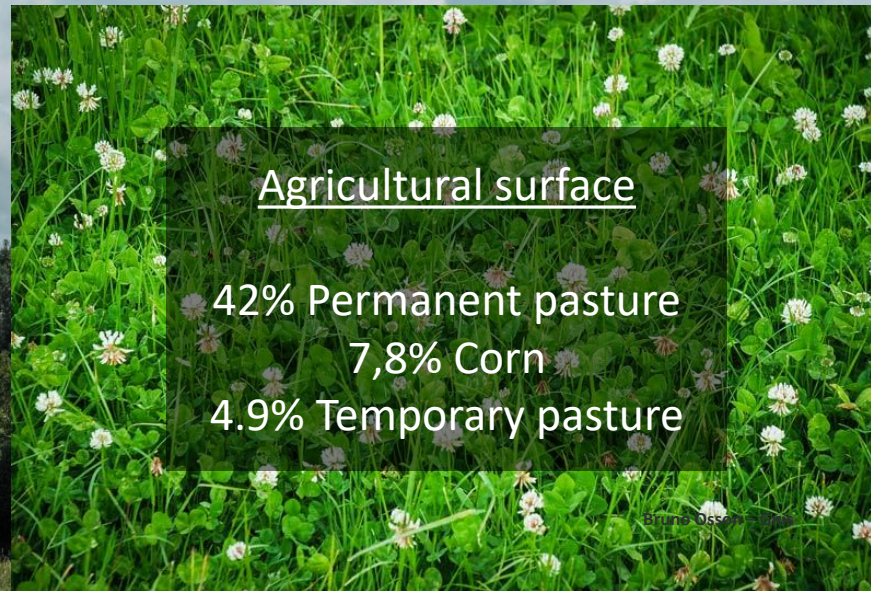
ICAR meeting 2023, 21-26th May



Le projet **WALLESmart**



Wallonia : context



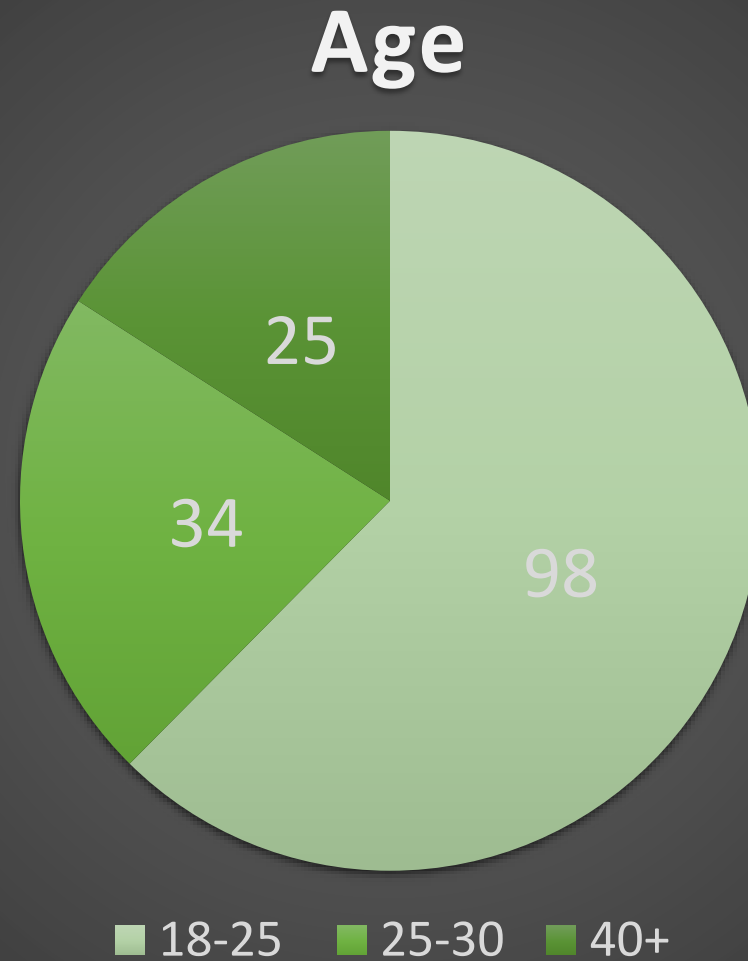
Statbel (Office belge de statistique), 2021. Chiffres clés de l'agriculture 2021. L'agriculture belge en chiffres. Statbel : Bruxelles, Belgique.

General workflow

**General pasture
DST survey**

DST : Decision support tool

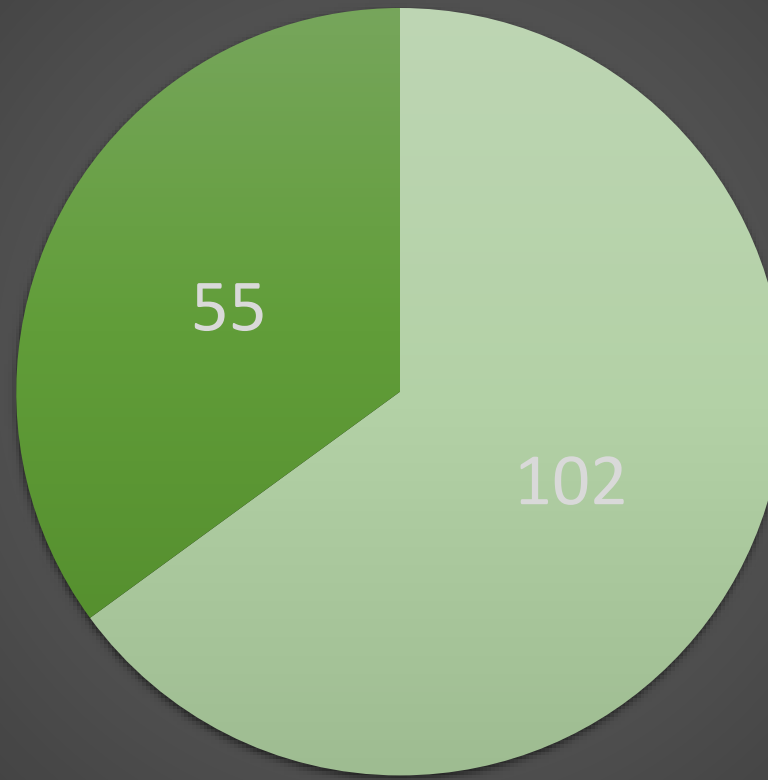
Farmer's interest : Survey results



L. Penasse
A. Bughin
T. Lefèvre

Farmer's interest : Survey results

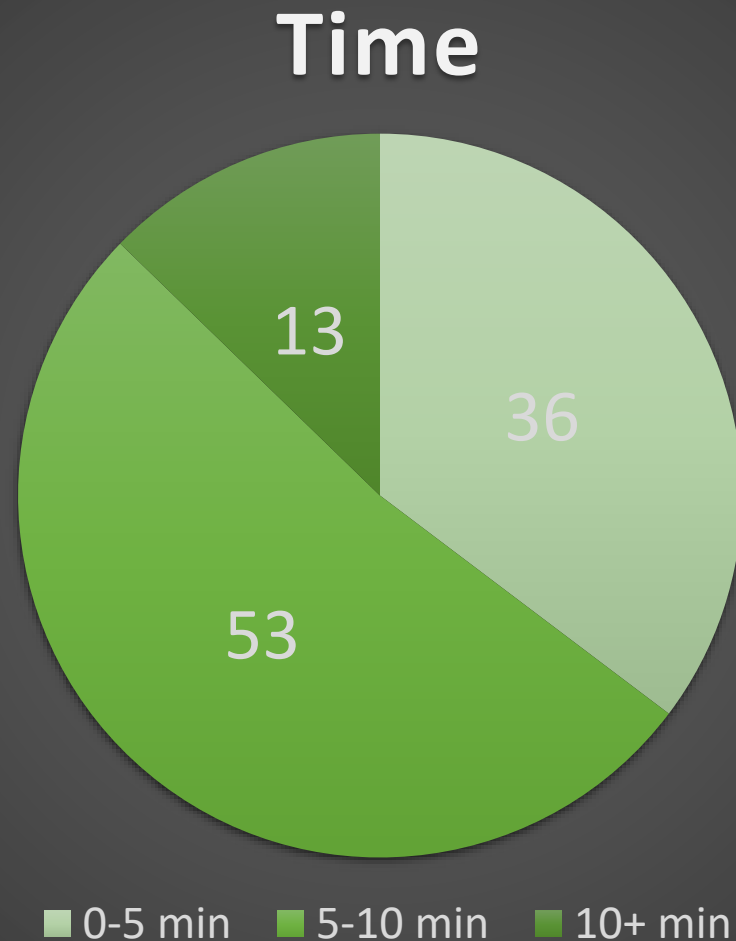
Interest



■ Yes ■ No

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

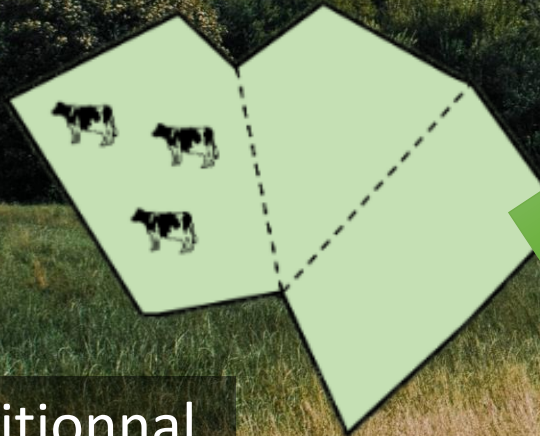
Rotationnal

Mixed Practices

Traditionnall

Continuous

Suckler



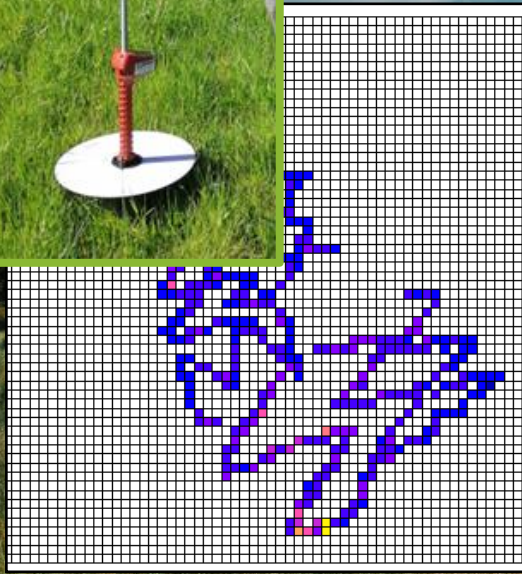
General workflow

**General pasture
DST survey**

**Functionnal
analysis**

**Ressources
assessment**

Ressources : estimation of the Compressed sward height

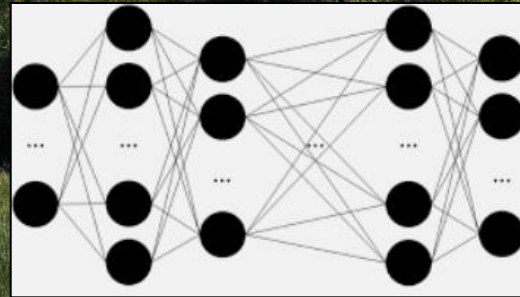


Compressed sward height (CSH) measurements

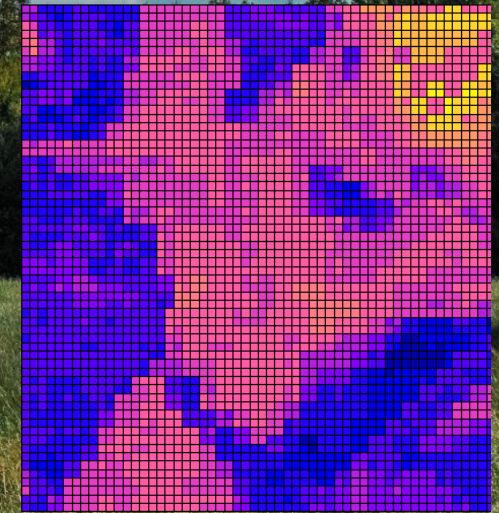


Error : ~20mm

Resolution : 10m/10m

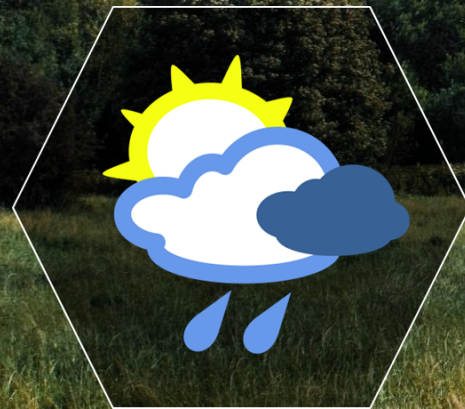


C. Nickmilder et al. (2019)

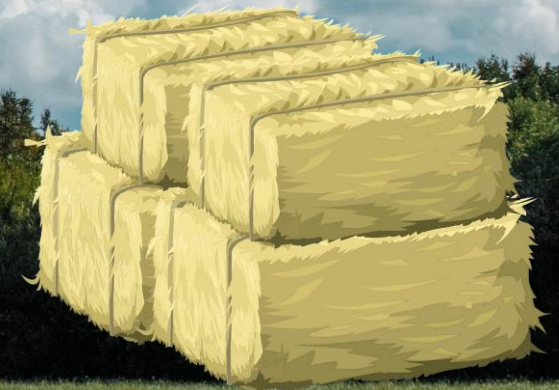


CSH estimation

Ressources : Database



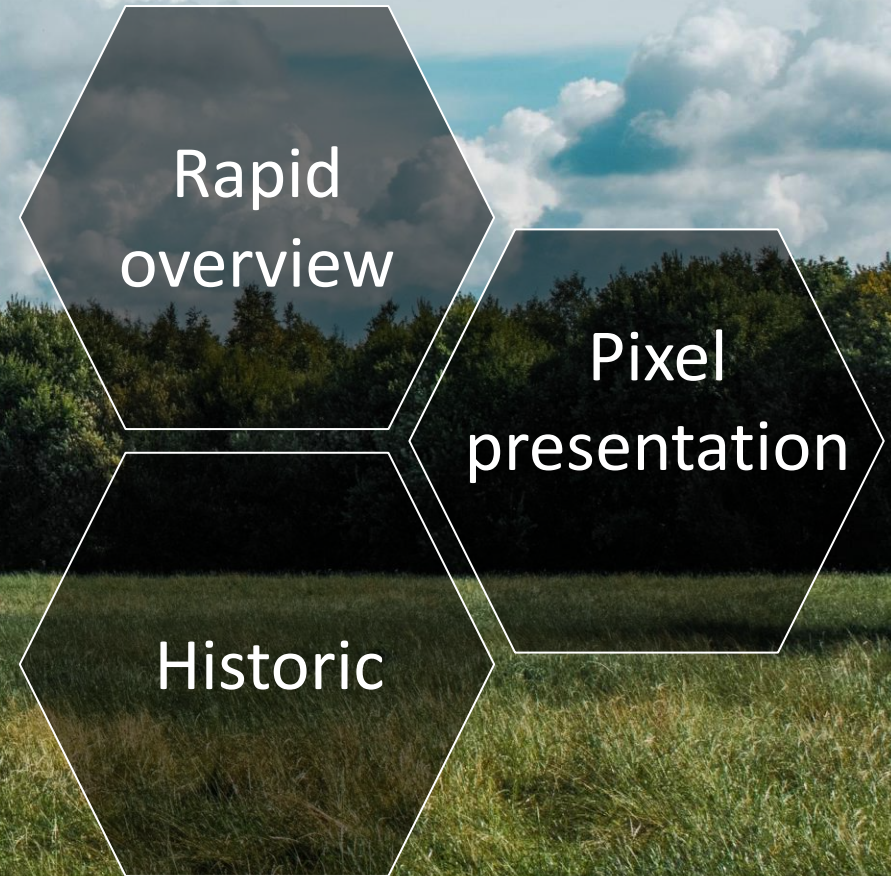
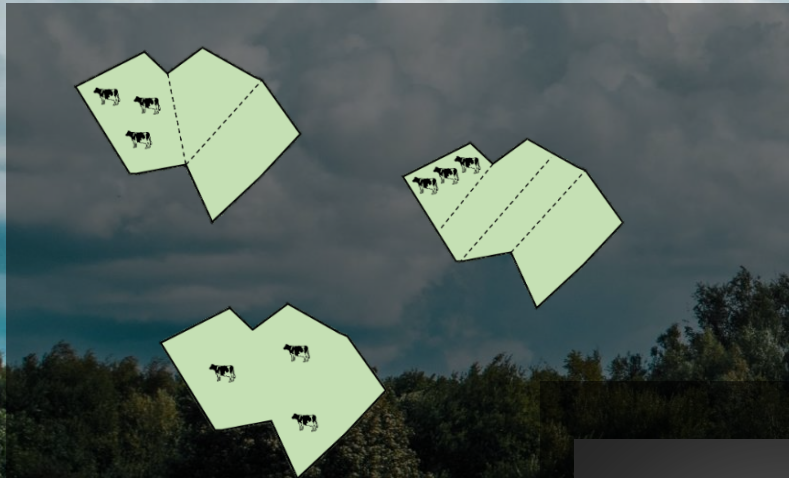
Linear equation



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
DST survey

Functionnal
analysis

Ressources
assessment

Backend
construction

Frontend
construction

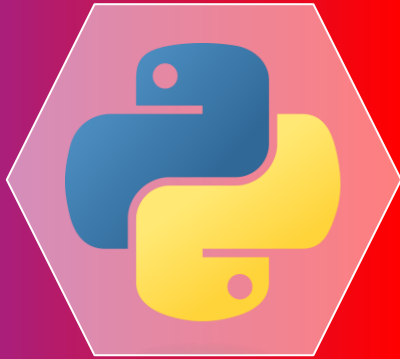
Backend-Frontend
Linkage

Decision Support Tool development

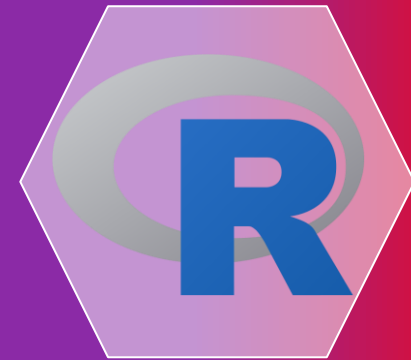
Frontend

Json request

Backend



S. Van Laeken
D. Maillard
J. Hendricks



K. Dichou

Json response

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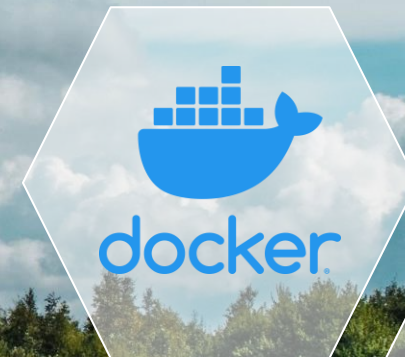
Backend-Frontend
Linkage

Implementation

WALLeSmart : Smart farming cloud platform

A. Roukh et al. (2020)

The screenshot displays the WALLeSmart web application interface. At the top, the navigation menu includes 'PROJET', 'PARTENAIRES', 'PLATEFORME', 'FINANCEURS', 'CONTACTER', and a red 'S'IDENTIFIER' button. The main content area features a search bar with 'Meilleure correspondance' and 'Chercher' options. A left sidebar menu lists various categories: Explorer, Applications, Parcourir, Chercher, Données, Utilisateurs, Utiliser, Fournir, and Autorisations. The main content area is divided into 'Tendance' and 'Récemment ajouté' sections. The 'Tendance' section shows four application cards: PhénoBlé (Mine Roukh, 3 stars), Karyon (Mine Roukh, 5 stars), Céciblé (Fab Nolack, 7 stars), and Pameseb (Fab Nolack, 1 star). The 'Récemment ajouté' section shows four new application cards with the same icons as the 'Tendance' section.



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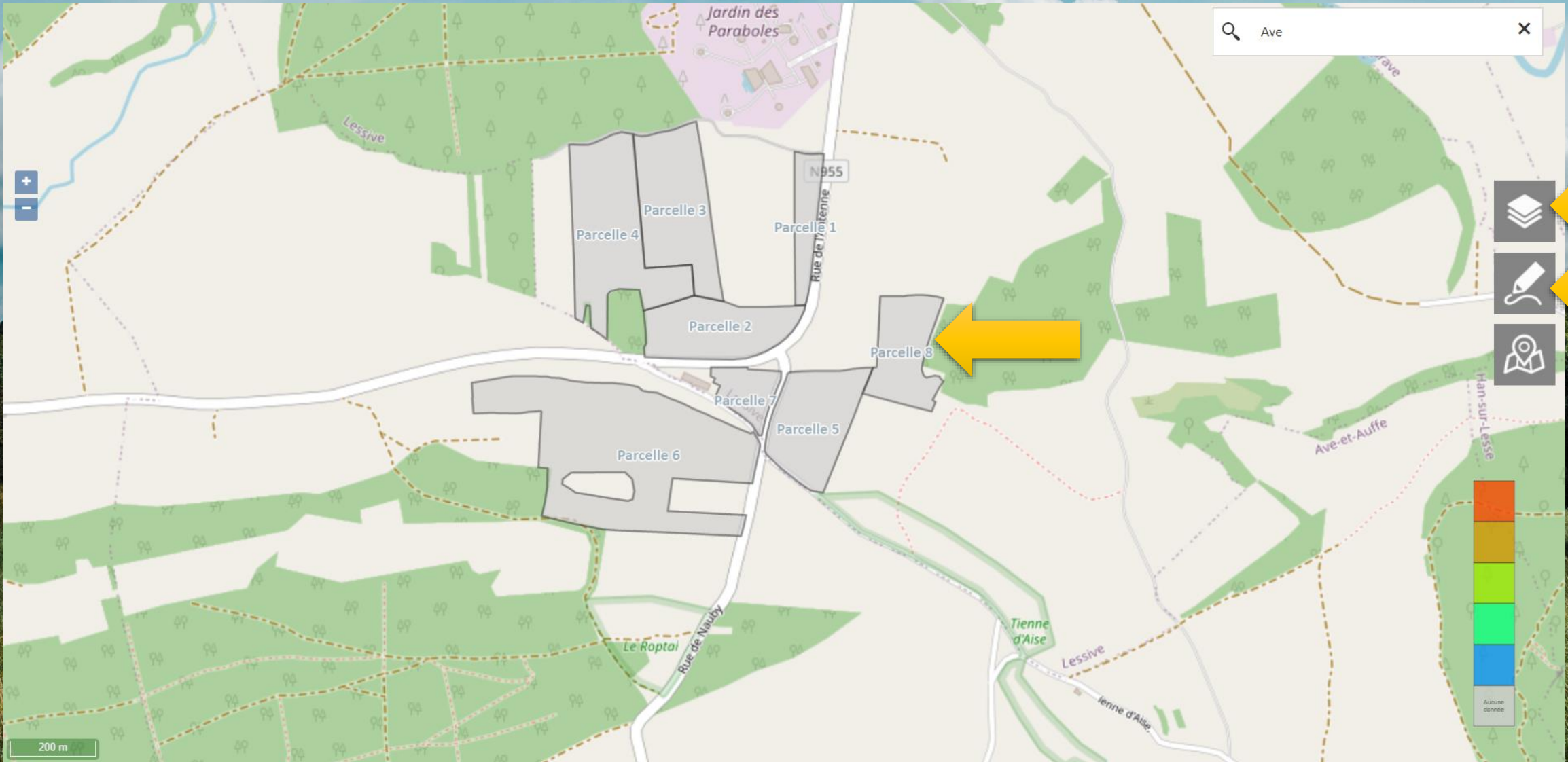
Frontend
construction

Backend-Frontend
Linkage

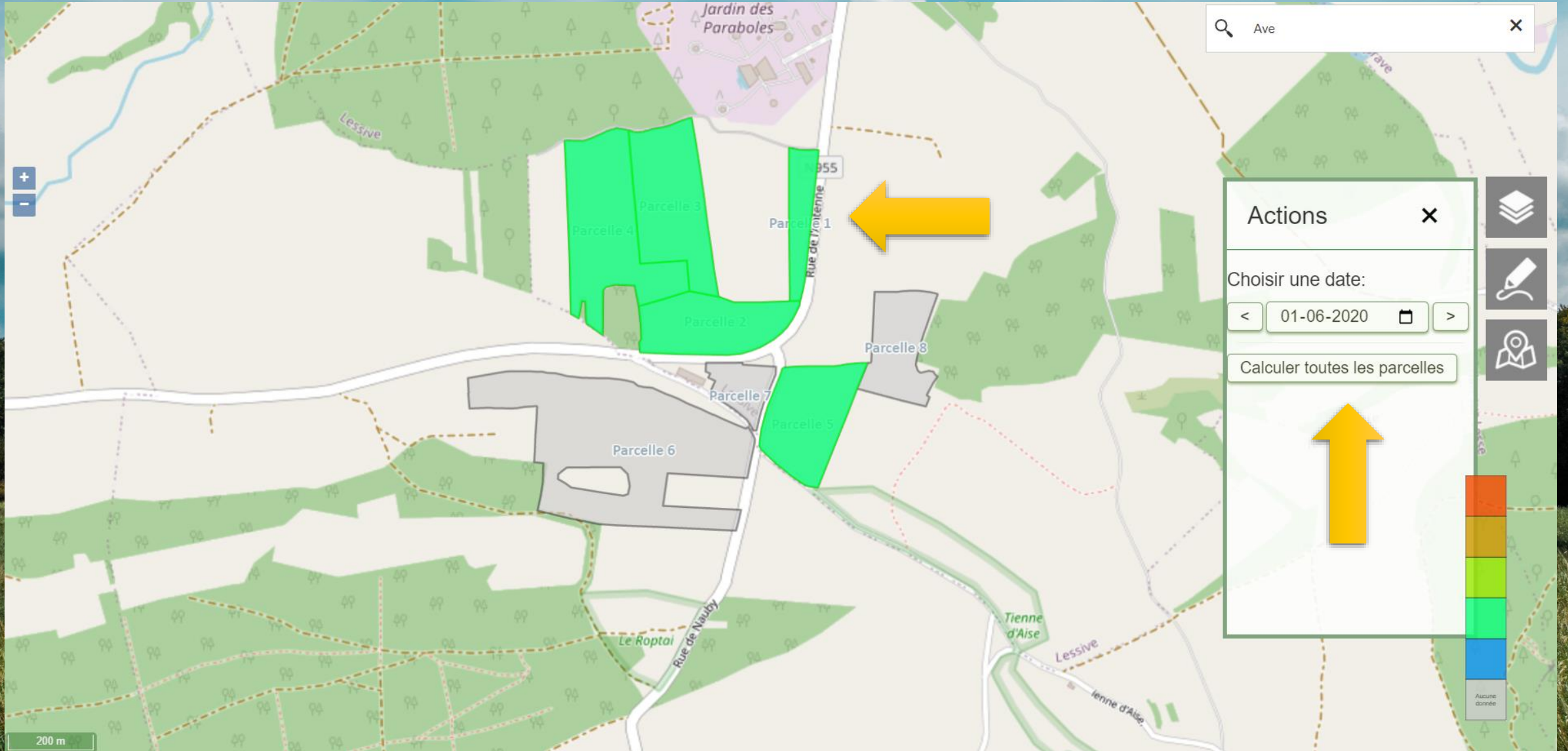
Implementation

Prototype testing
phase

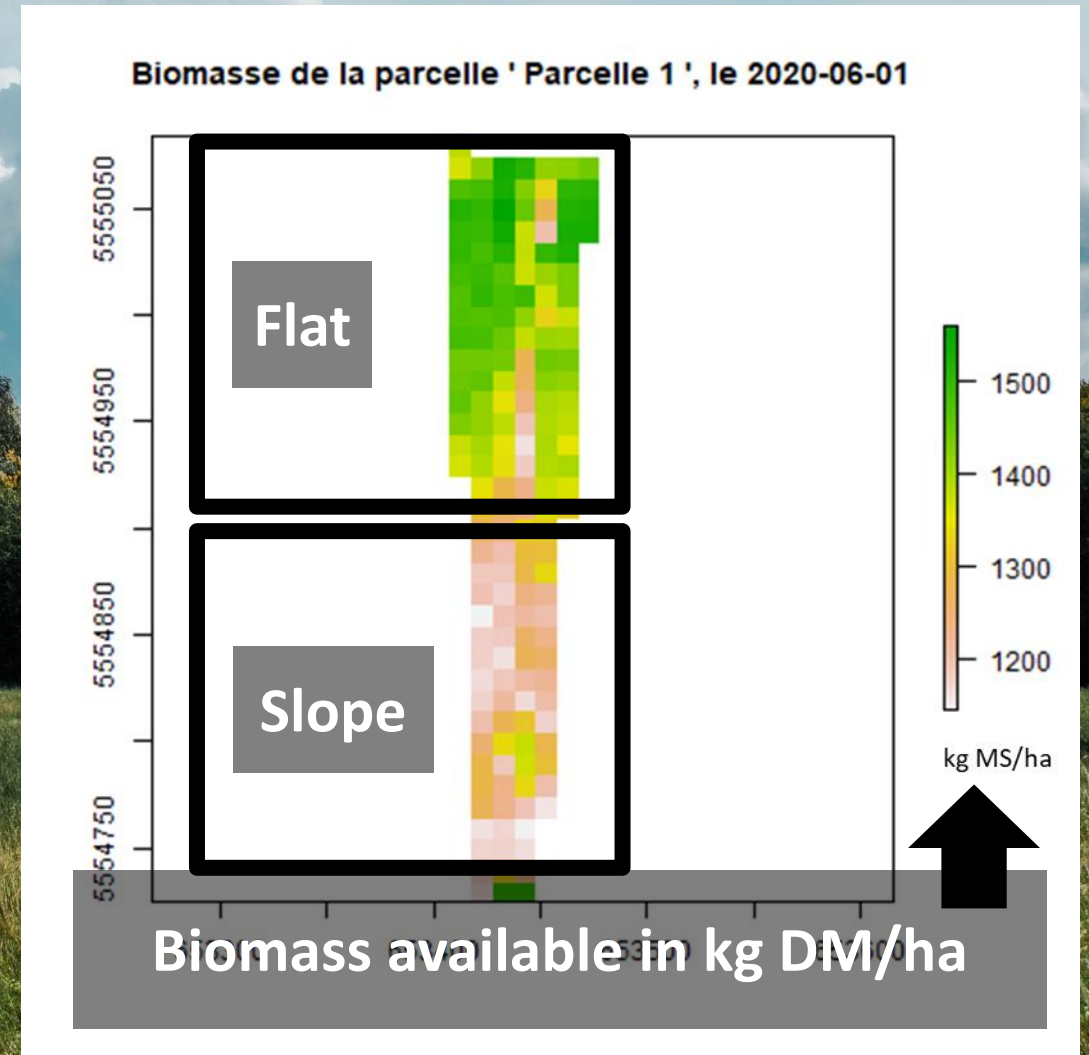
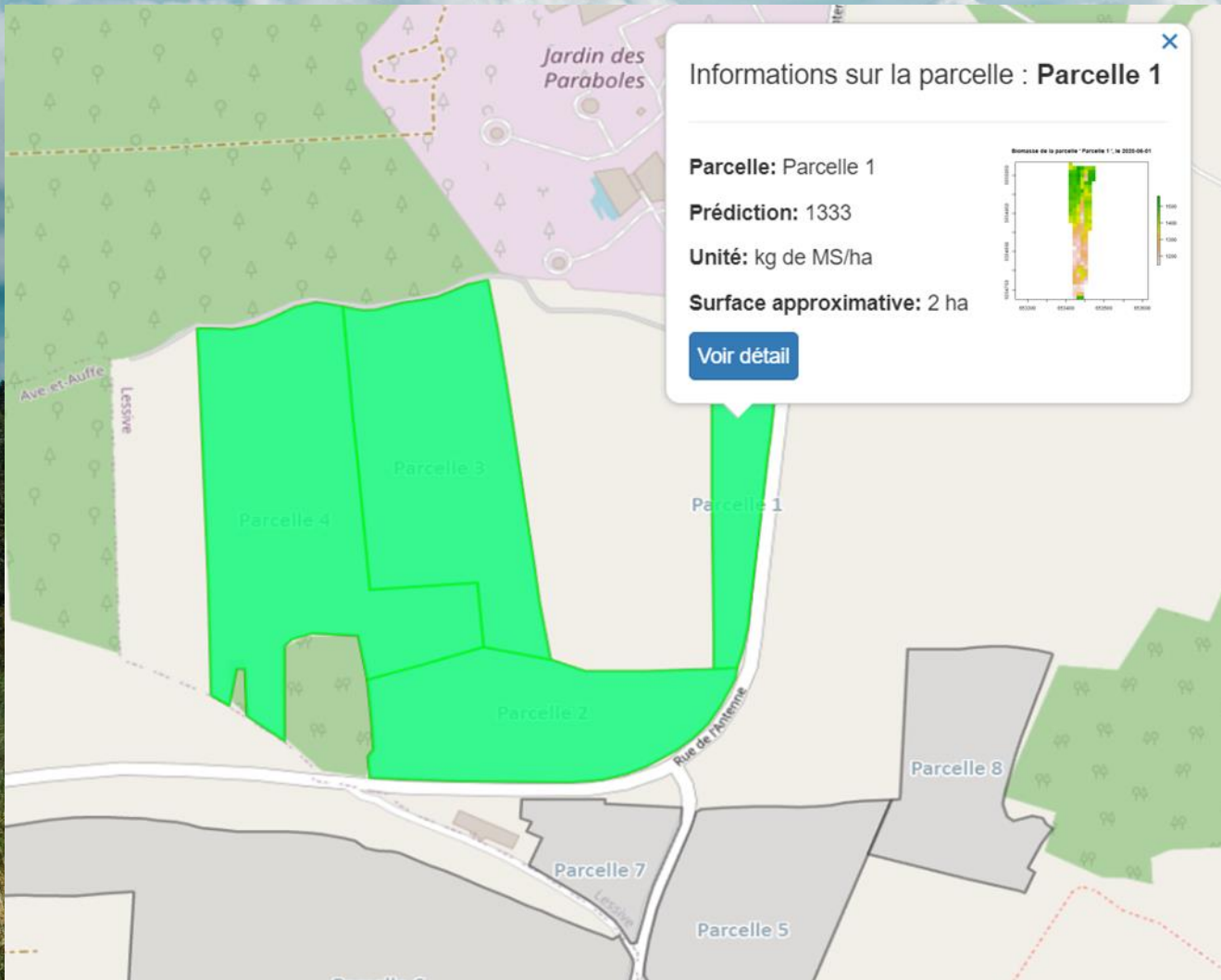
Tool 1.0



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

