I know what you did last summer
High resolution mapping of wild boar damages with drones

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I. Wild boar damages in Wallonia

Wild boar causes important damages to agricultural lands
→ Conflicts between farmers and hunters (economic issue)

Currently pedestrian assessment by experts
→ Time and man power consuming
→ Sampling and variable accuracy

Crucial need for objective assessment

Are drones a solution ?
→ Cost effective and user-controlled systems
→ Fine and accurate mapping of the damages

?

Wild boar or badger? A financial issue

As a protected species, damages caused by badger are due by the Region. In case of wild boar damages, the responsibility and the cost must be assumed by the closest hunter association

II. PLATFORM

Gatewing X100
Consumer grade camera (Ricoh GRIII)
Micro-drone
 Weight: 2 kg
 Flight duration: ca. 40 min
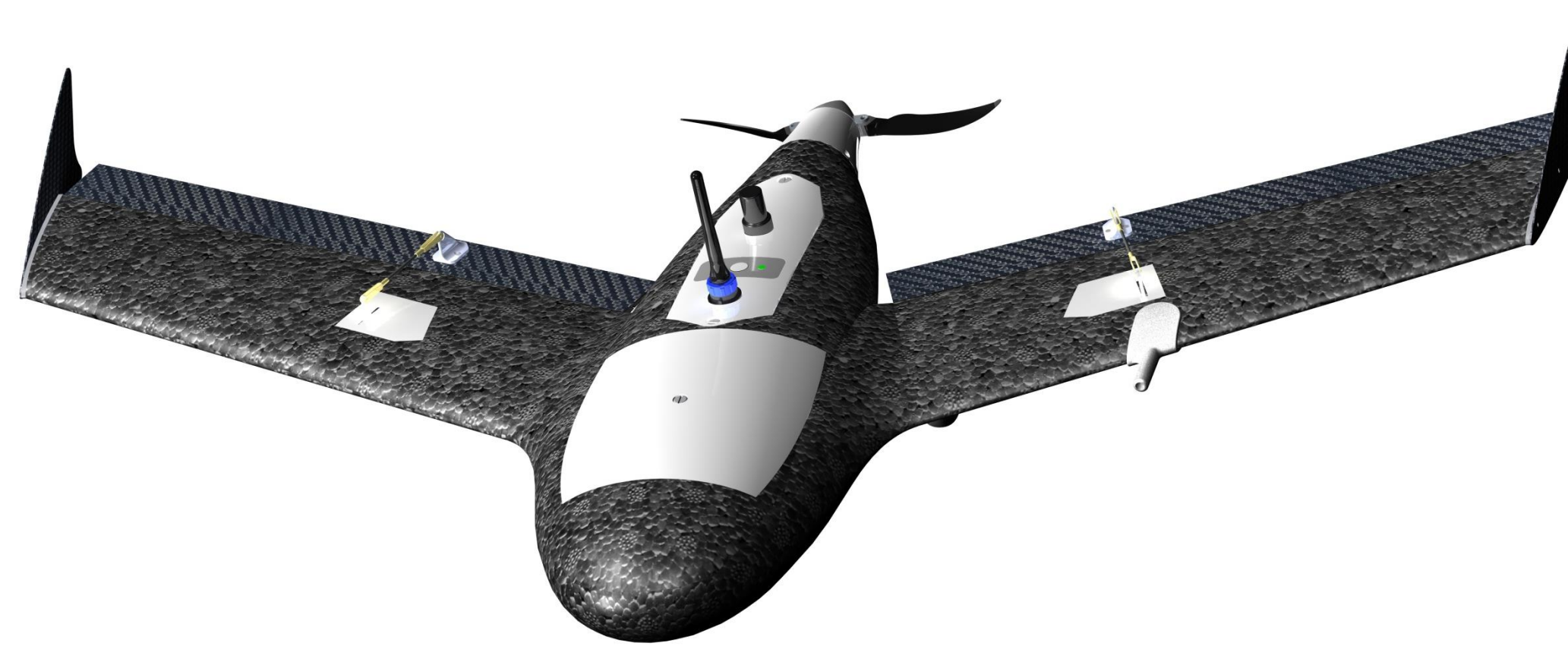
Limited to rectangular flight
Typical flight
 100 ha / flight
 100 m above ground level
 80 % overlap

III. DAMAGES ESTIMATION

Aerial survey
multitemporal datasets
2 during corn grow / 1 after harvest
Mean GSD: 0.03 m
Mean Altitude : 100 m

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Photogrammetric processes
Digital Surface Model
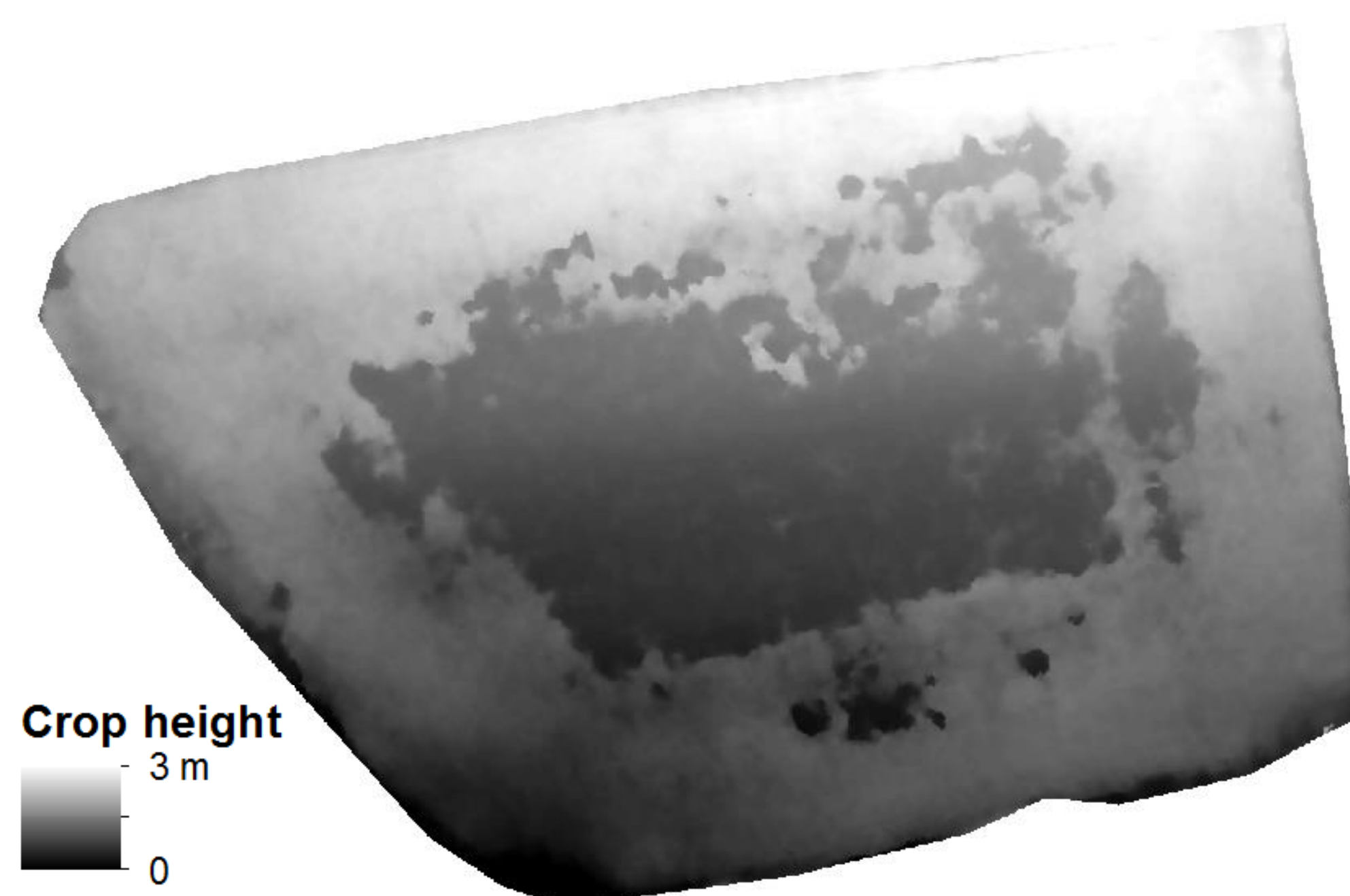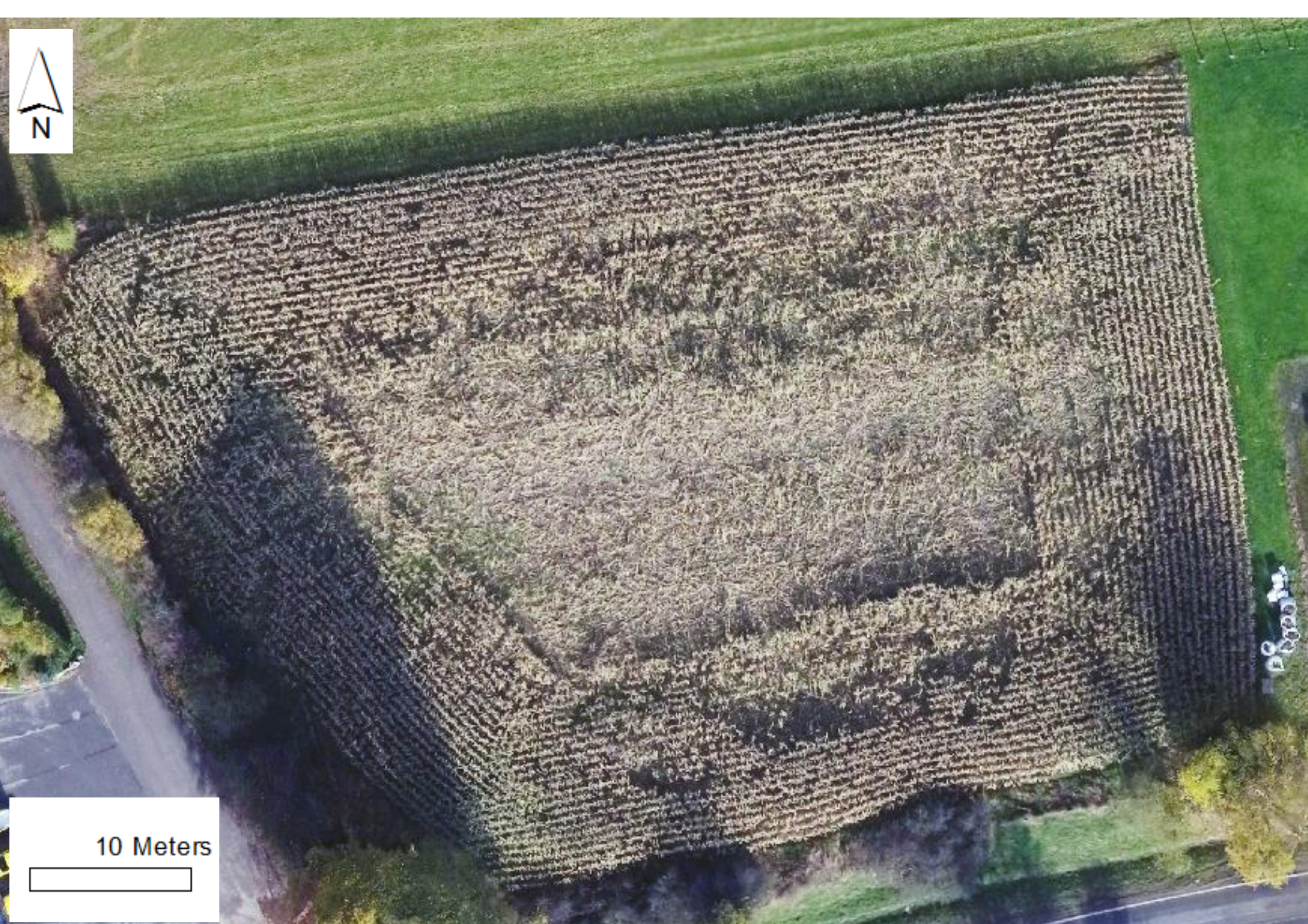Orthophoto (Agisoft Photoscan)

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Co-registration
Bare soil areas with National LiDAR DTM (CloudCompare)

→

Crop Surface Model Computation
Photo-DSM - LiDAR DTM

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Automatic damage mapping
Based on crop height threshold
OBIA & pixel based analysis

10 Meters

Crop height
3 m
0

Area dammaged (1481 m²)

Field survey
Damage assessment:
 Complete pedestrian censing
 Species that caused the damage

→

Field based estimation of the damaged area
Regarding the outdistance sowing
Result by species (wildboard VS badger)

→

Validation of the results
Accuracy assessment
 Area dammaged
 Classification accuracy (badger VS wild boar)

IV. CHALLENGES FOR THE PROJECT

Comparison with classical field approach
 Accuracy assessment
 Ability to discriminate the damages of the wild boar from whose of the badger ?
 Cost-effectiveness analysis (VS classical field approach)
 Extend the method to others agricultural land (*e.g.* grasslands)
 Test of open-source drone solution (cost reduction)

gembloux agro bio tech

Avec le soutien de la

Wallonie

Université de Liège

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