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

II. PLATFORM

Gatewing X100
Consumer grade camera (Ricoh GR III)
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

Photogrammetric processes
Digital Surface Model
Orthophoto (Agisoft Photoscan)

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

Crop Surface Model Computation
Photo-DSM - LiDAR DTM

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

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 (wild board VS badger)

Validation of the results
Accuracy assessment
Area damaged
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)