

High throughput 3D plant analysis precise inspection on organ and field scale

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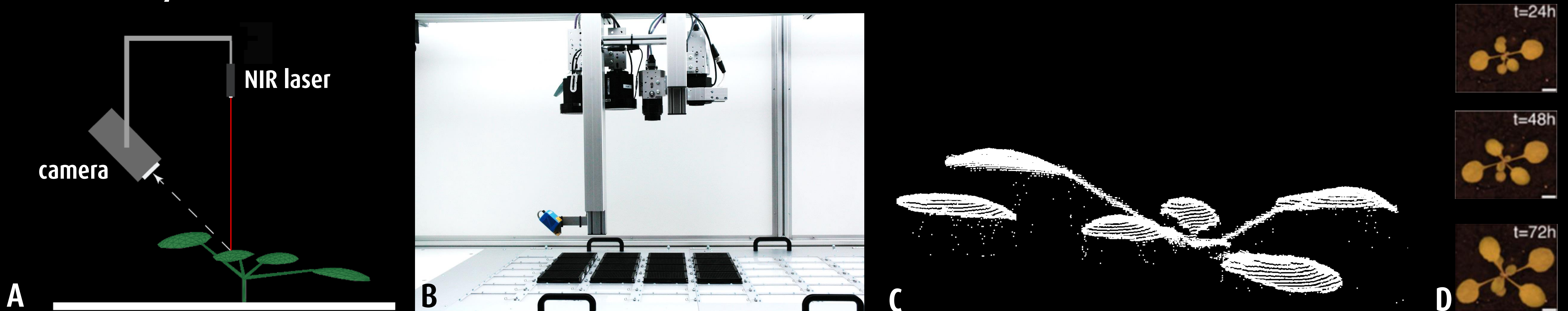
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Background

- Laserscanners combines high resolution and high accuracy to image smallest details of plants.
- Collecting 3D geometry information of plants enables the acquisition of new shape parameters of plants such as stem or ear volume.
- Combination of various points of view allows tracking of growth on organ level.

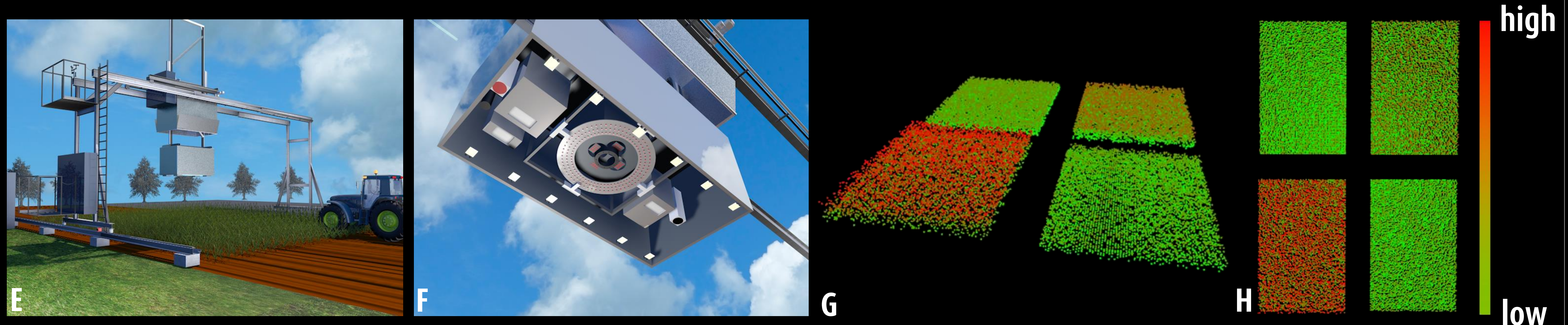


On laboratory scale



Lasertriangulation (A) enables high-throughput acquisition (B) of depth images of single plants (C) and the tracking of growth of single organs over time (D).

On field scale



Using multisensor platforms (E,F) including 3D laserscanners enables the derivation of 3D point clouds to create 2D height and growth maps (G, H) on field scale.

Conclusion

- Laserscanning is a powerful tool for monitoring plants in high resolution and can be used in laboratory for single plants as well as on field scale.
- Organ-based parameters can be observed such as leaf area, elongation or leaf movement on laboratory scale.
- 3D Imaging on field scale enables the generation of height maps or - in case of different scans over time - the generation of growths maps.

