

5.5.2021



patchCROP

ONLINE FELDROBOTIK-WORKSHOP

ESCARDA TECHNOLOGIES

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Conventional Agriculture



- ***Excessive use of chemicals*** has devastated the environment.
- ***Weed resistance*** (super weeds).
- ***Social rejection*** of products grown with agrochemicals.

Leading Organic markets - 2018



USA (43.39 billion USD)



Germany (13.2 billion USD)



France (11 billion USD)

Organic Agriculture disadvantages

- *Excessive labor costs*
- *Lack of labor force*
- *Labor-intensive task*



Costs of weeding

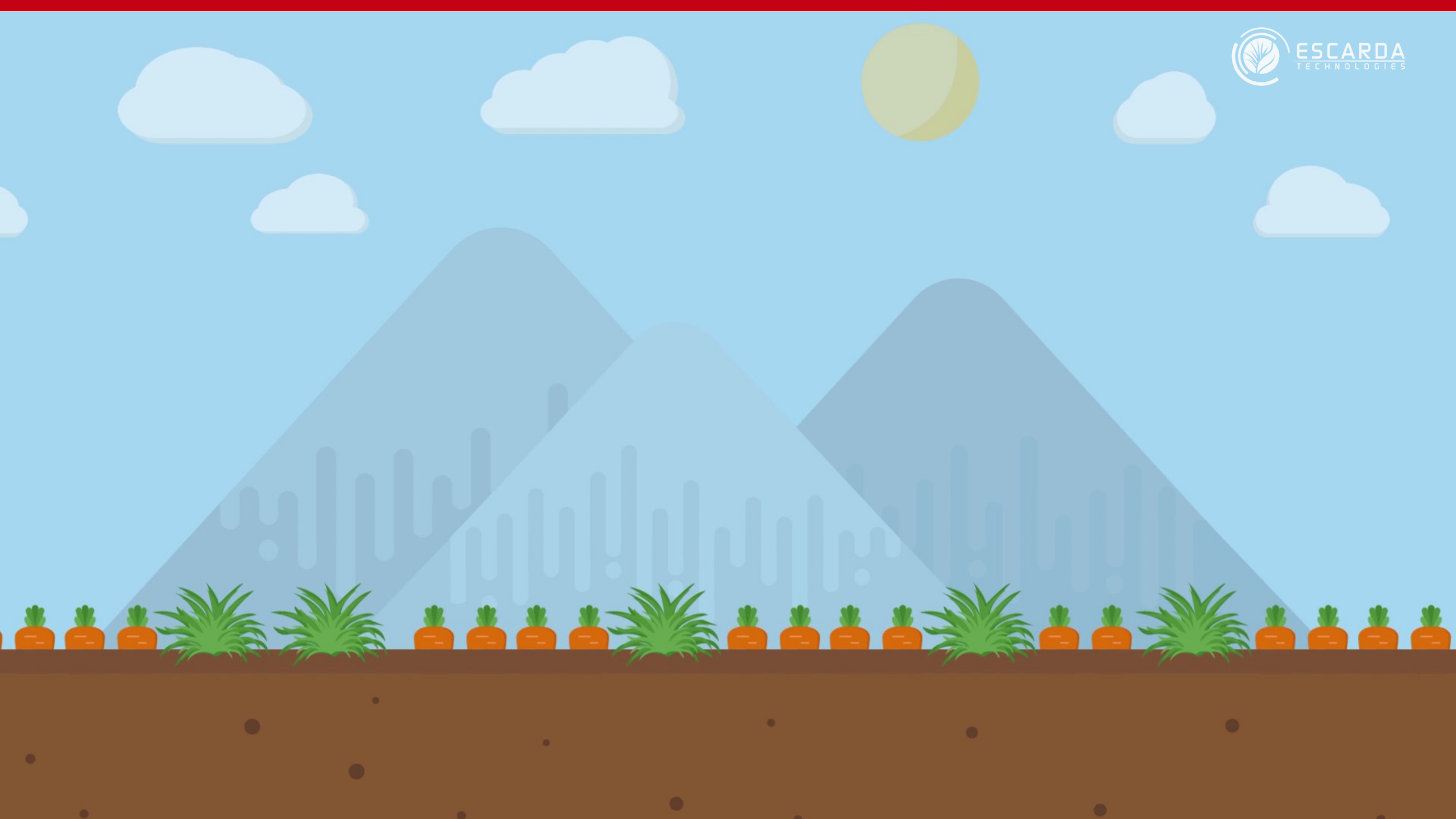
In California, for an area of 150 acres.

One pass on average costs \$13,061.4

Usually, 2-4 passes are necessary, whenever weeds start to grow again.

data from:





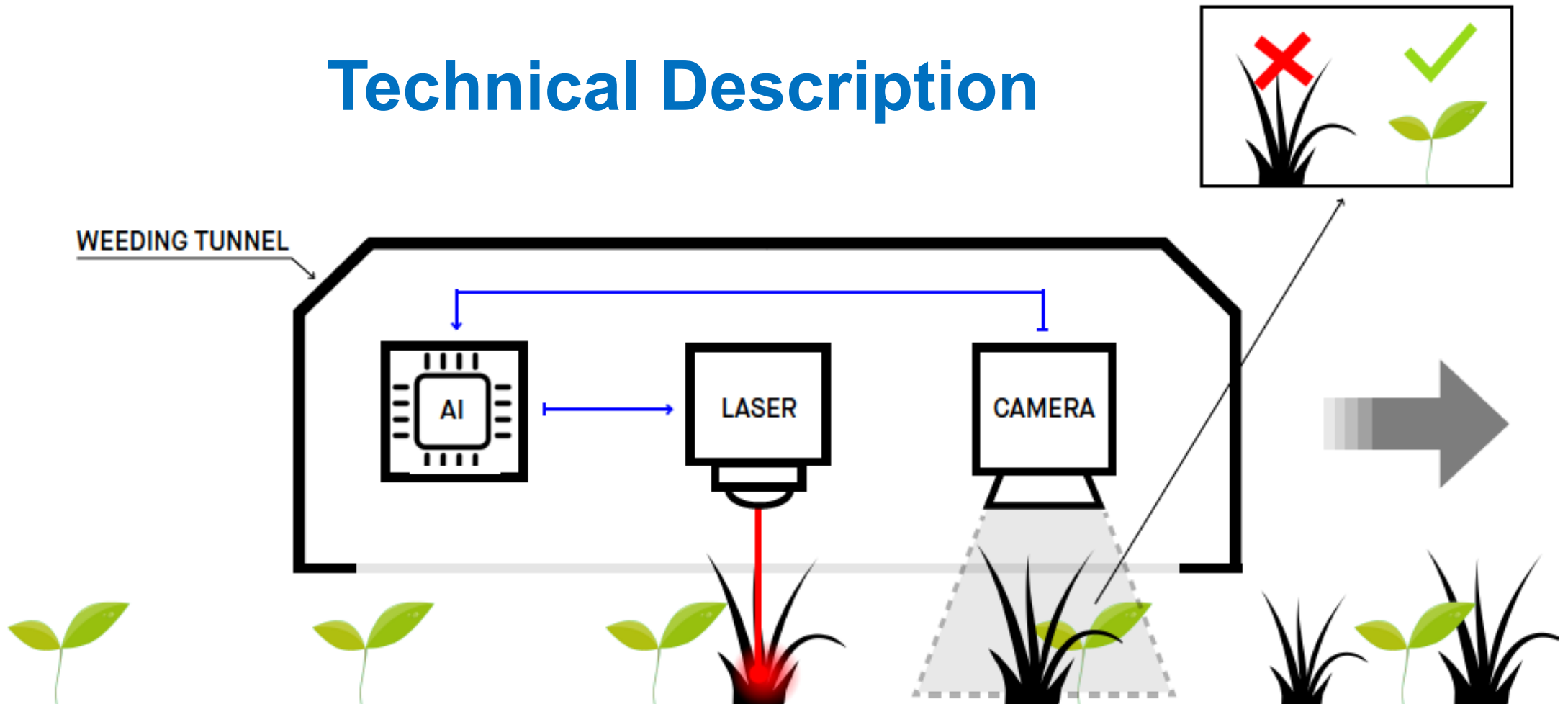
- **Reduced labor costs.**
- **Increased productivity.**
- **More profitable crop production.**
- **Reduce the impact in our environment.**



Laser-based Weed Control System



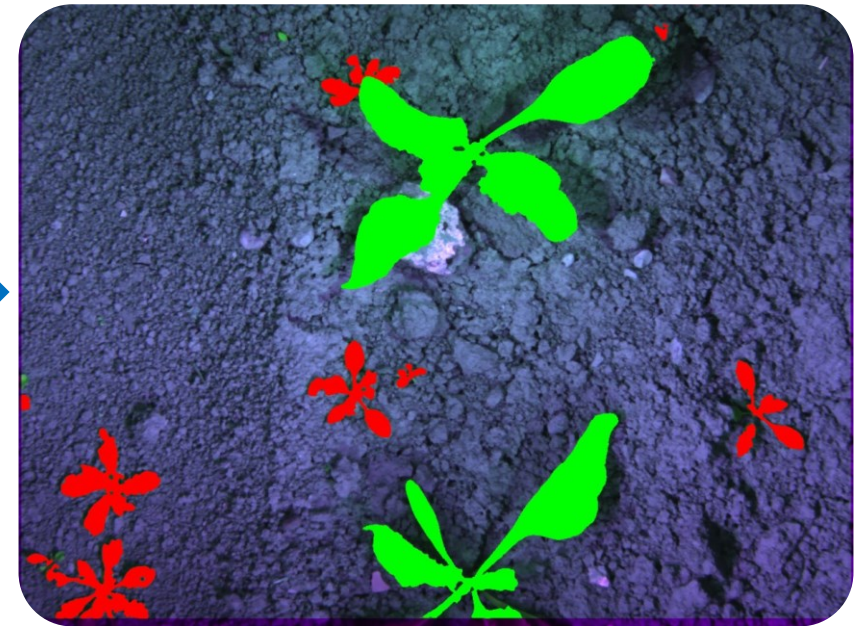
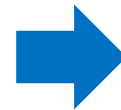
Technical Description



AI - Plant Classification



**Plant
Classification
System**



 Sugar Beet

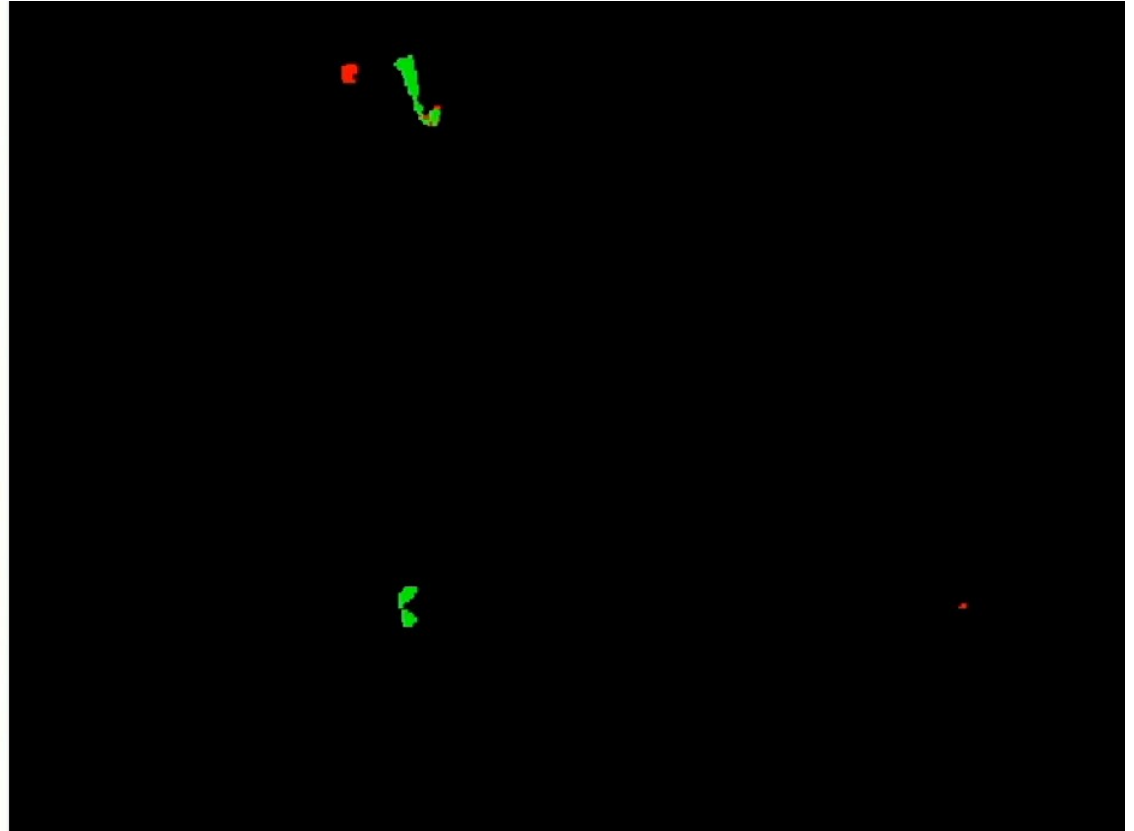
 Weed

Plant Classification

Video Input



Classification Results

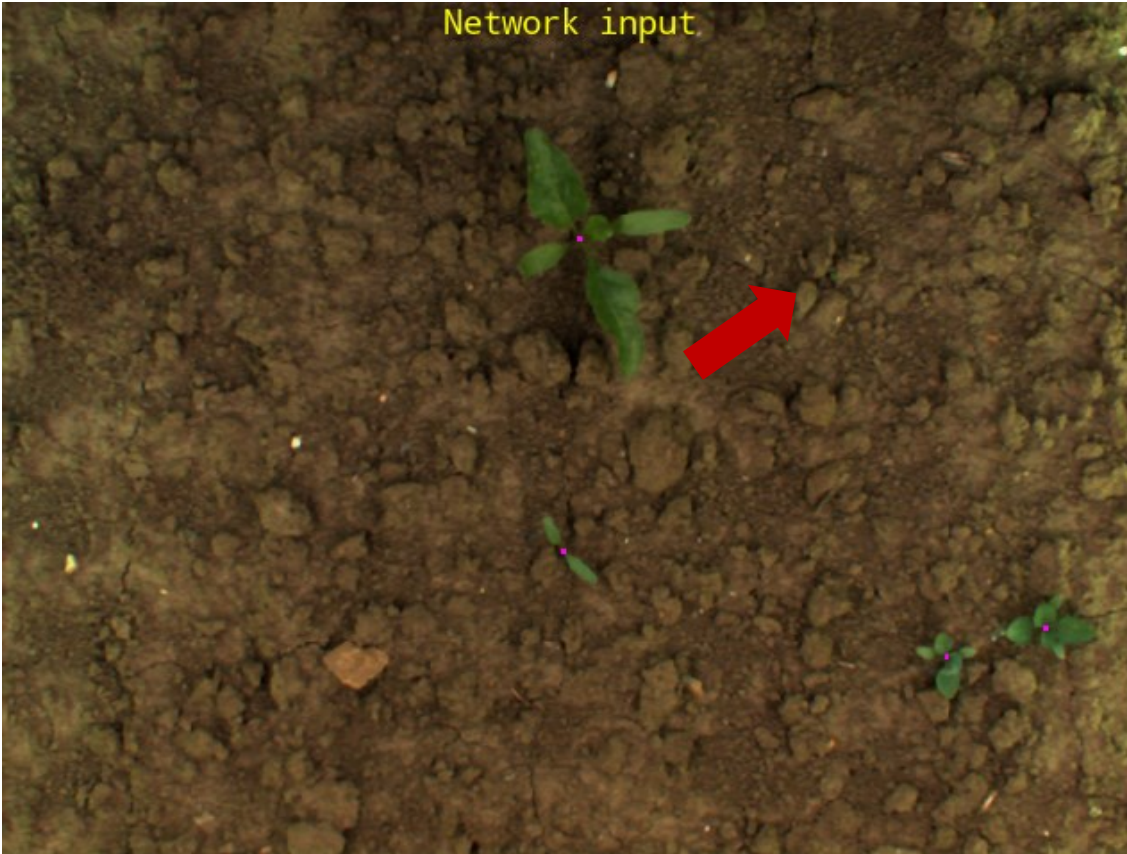


 Crop

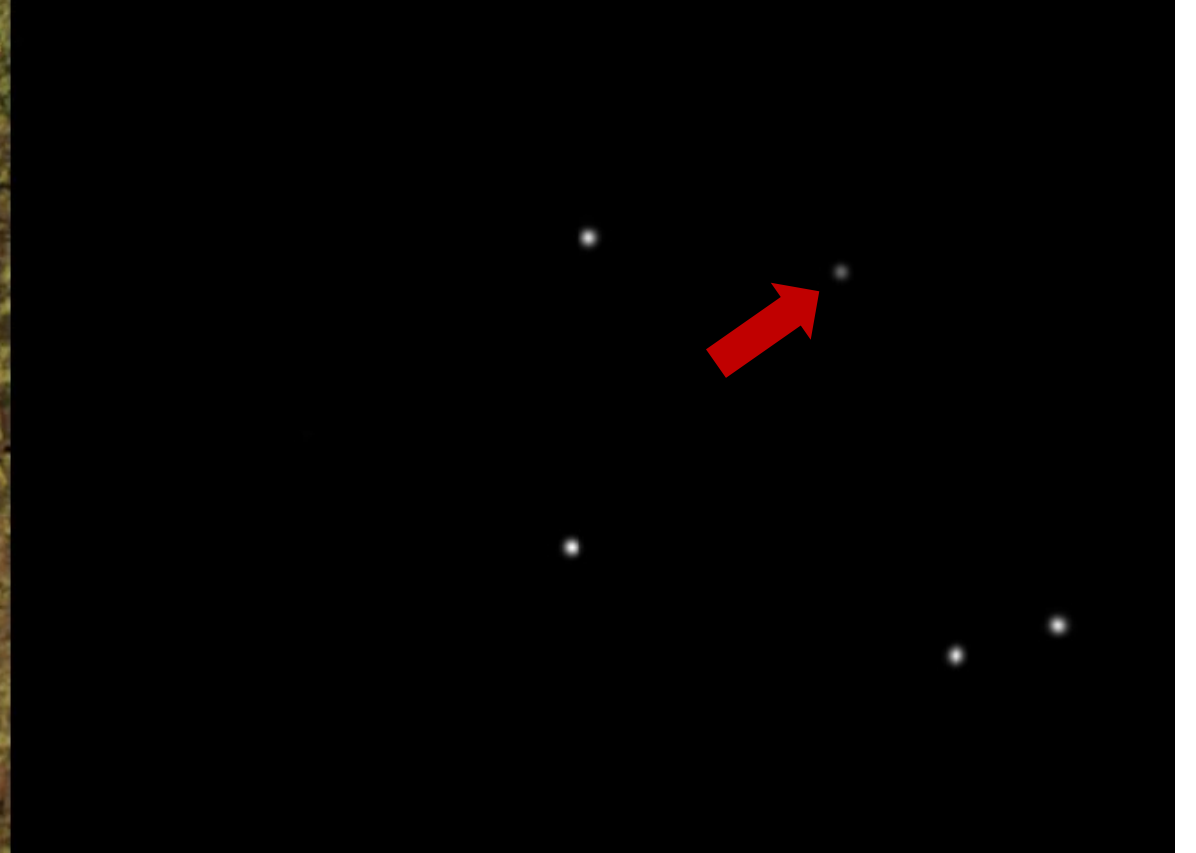
 Weed

Vegetation Stem Detection

Network Input



Network Output



Vegetation Stem Detection





100 ms Laser Treatments



Laser-based Weed Control System

13ms treatments



Before Beam



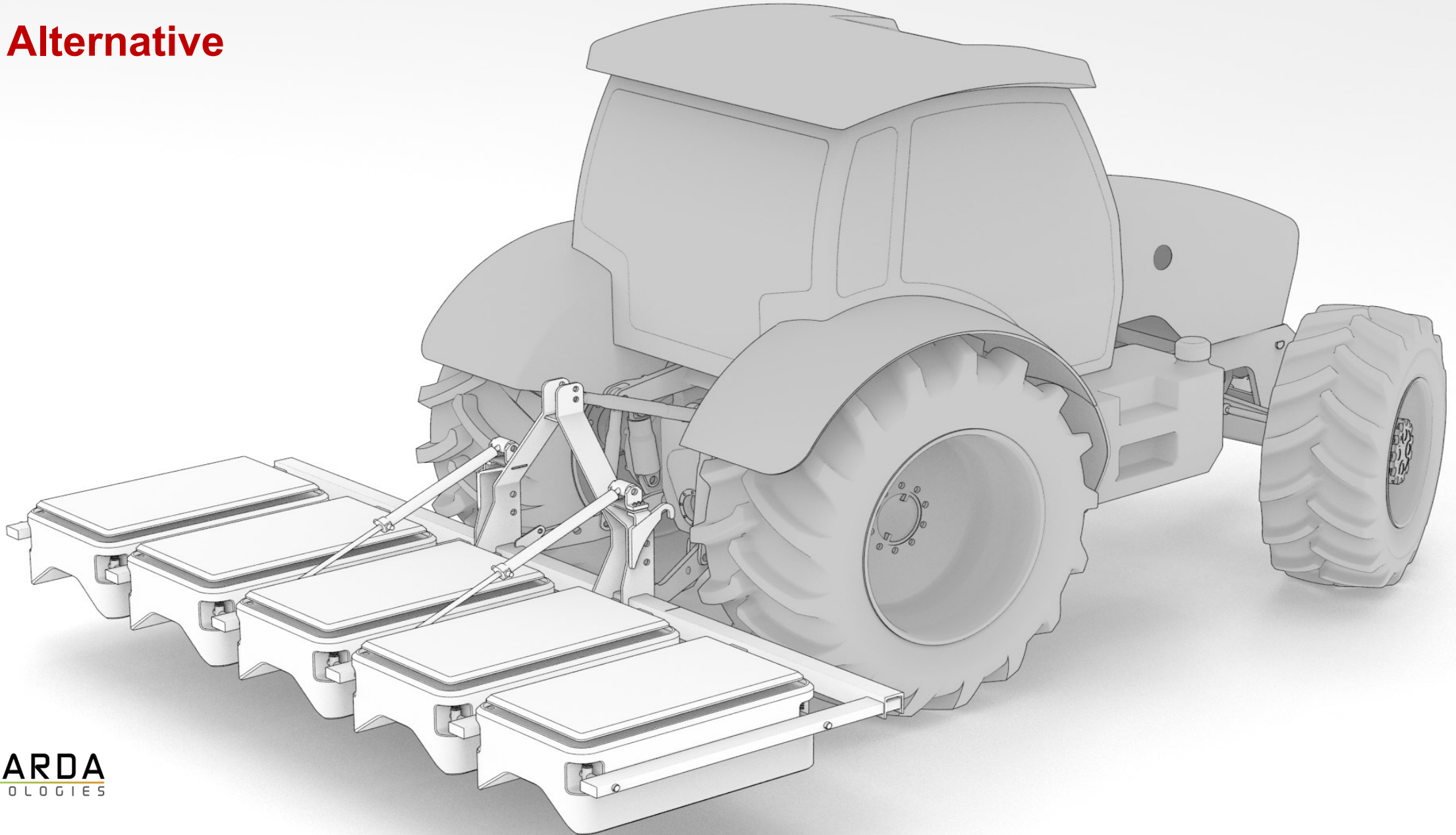
After Beam



After 3 Days

Laser-based Weed Control System

Trailer Alternative



Photonische Unkrautbekämpfung im Zuckerrübenanbau -

Laserbasiertes Unkrautmanagement (LUM)



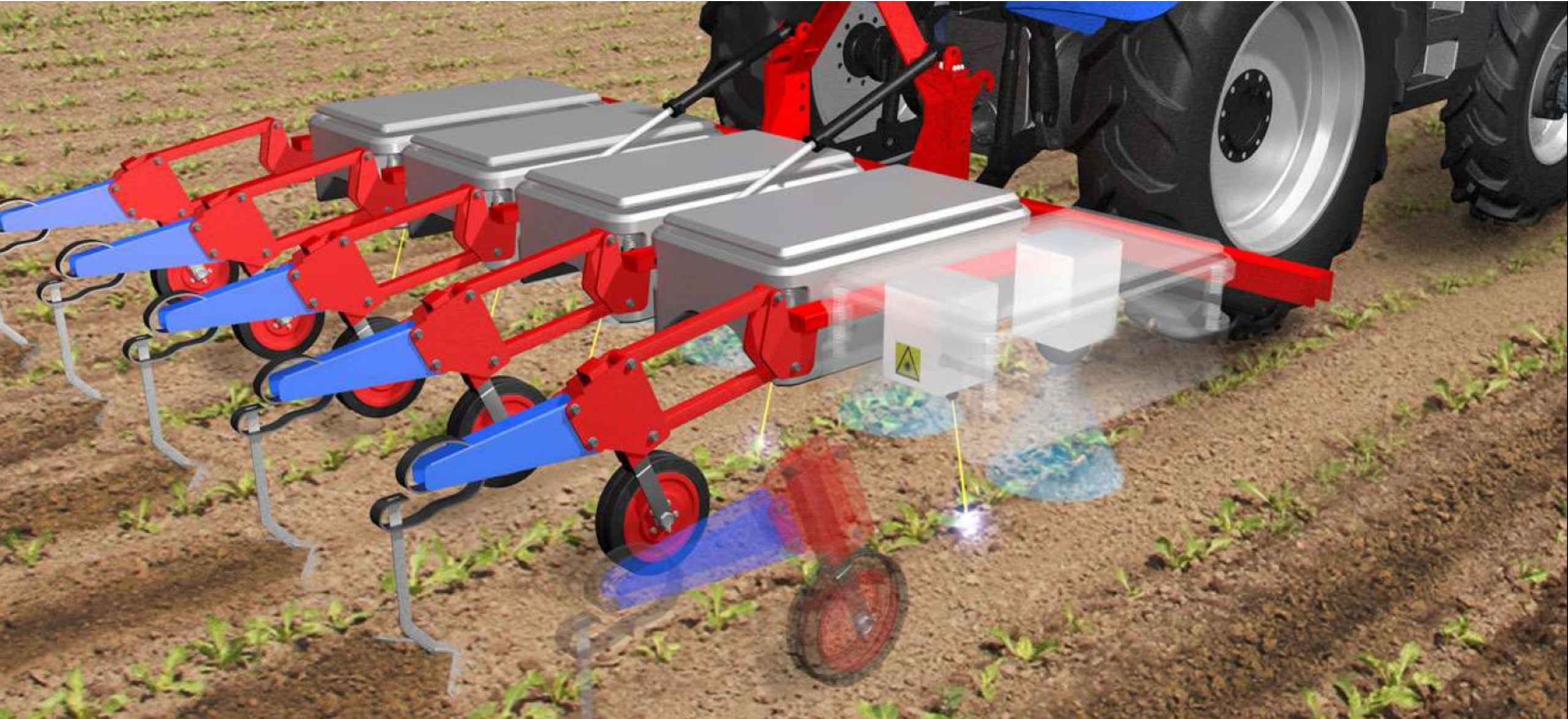
Bundesministerium
für Bildung
und Forschung



Nordzucker



Lumics



Robot Alternative

Future cooperation with AI.Land GmbH

ETAROB



Thank You!



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