FARMDROID

FD20

AUTOMATIC SEEDING & WEEDING ROBOT

Contents

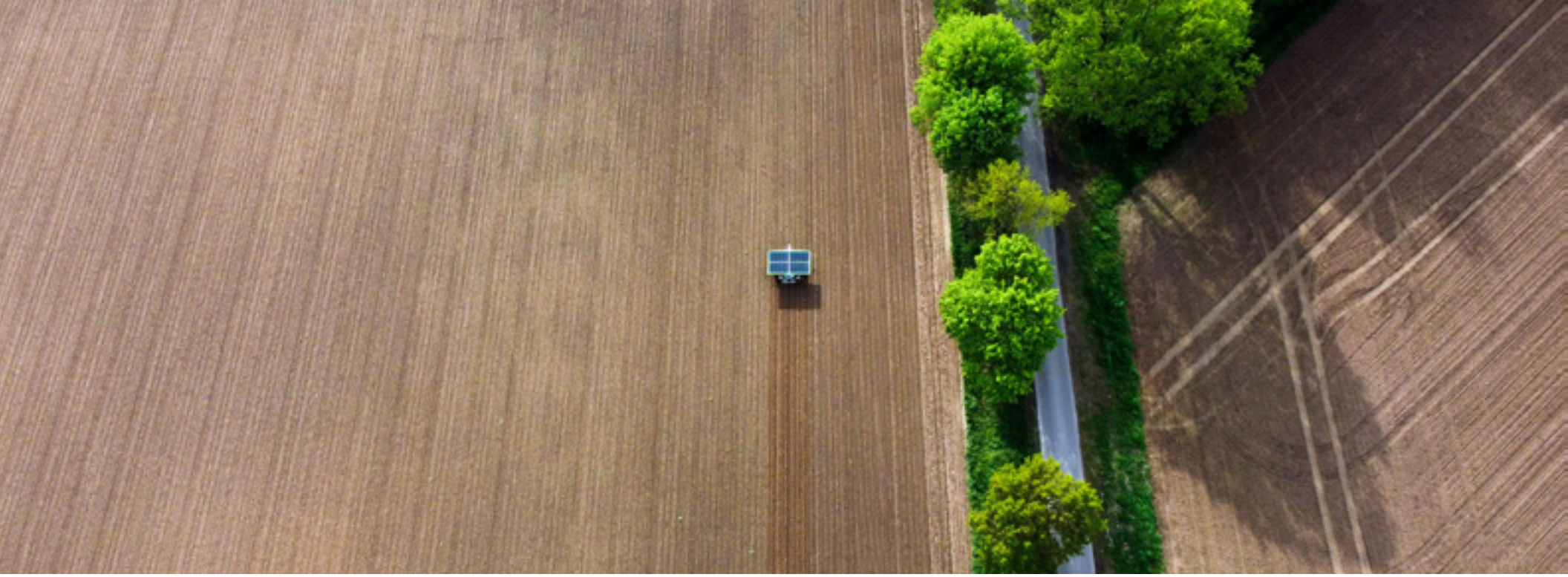
A revolution in weed management

FarmDroid FD20 was developed with one specific aim; to manage weed control more effectively and sustainably, thereby using technology for the greater good of farmers and planet earth.
The FD20 is the result of countless hours spent developing and testing in the field.

Our aim is, first of all, to make seeding and weeding easier and more cost-effective. Second, we will develop robots for the the greater good of farming by accomodating the expectations of the global society: reducing or eliminate CO2-emissions, the use of agrichemicals and hard repetitive work.

Compared to other systems FarmDroid FD20 doesn't rely on expensive and complicated camera systems. It is the world first fully automatic seeding and weeding robot, which by the use of high precision GPS-seeding knows the position of each seed, making weeding possible both between rows, as well as in the row between the plants.

This makes investing in a FarmDroid FD20 an attractive business case with a return on investment down to two years.



Powered by the sun

The Sun is the main source of life on earth - and the only source of energy for the FarmDroid FD20.

FarmDroid FD20 is powered solely by solar power. The four solar panels are powering the batteries for the electrical motors, and generates enough power for 18-24 hours of daily operation, depending on weather and working conditions.

The drivetrain consists of two electric motors, one for each back wheel, producing a total of 800W. This drives the FD20 up to 950 meters per hour and makes it capable of seeding or weeding up to 6 hectares per day.

With FarmDroid FD20 you can enjoy completely CO2 neutral operation.

High precision seeding

FarmDroid FD20 knows the position of every single plant. You heard it right! When performing the seeding FD20 places each seed in a perfect pattern and thereby knows where each seed is located. This is possible by the use of a high precision GPS.

Seeding depth can be adjusted for different soil types and soil conditions, as well as adjustment of the seed distance, and the number of seeds to accommodate different crops and preferences.

FarmDroid FD20 can be configured with 4-12 rows and a distance of
22,5-90 cm.

A robot you can trust

When the FD20 has been set up, it is capable of performing seeding fully automatic. To leave such an important task to a robot we incorporated several failsafe systems to ensure that you can leave your FD20 in the field and trust that it will get the work done.

Each seed is released from the seeding system is being registered, so if a malfunction happens or seeds gets stuck, the FD20 will stop and send a message that it must be checked before proceeding.

Automatic weeding

In organic sugar beets and similar crops the manual weeding process is time consuming and expensive.The FarmDroid philosophy is to manage unwanted weeds as early as possible, to secure the best possible conditions for the crop to grow. Due to the robot knowing the position of each seed, the weeding can start even though the crop is still not visible, unlike camera systems that needs to recognize the crop at a certain stage.

Three weeding wires in each row ensures cleaning between rows, to remove thistles and other weeds. The weeding arm for in-row weeding between the crops is connected to an electrical motor, which pulls the arm in and out of the row. The timing is managed by the robots computer and is adapted to the standard seeding distance, but every farmer and every crop is different, so the timing of the weeding arm can easily be adjusted to go either closer or further from the crop. Weeding is performed in both seeding direction and opposite direction to ensure highest possible weeding quality.

Depending on the soiltype and weed pressure FarmDroid FD20 will greatly reduce or completely eliminate the need for manual weeding.

When finished seeding FarmDroid recommends to perform blind weeding, followed by inter and intra row weeding.

Features

- Solar powered
- Up to 24 hours operation per day
- 450 – 950 metres per hour
- Up to 20 hectares per robot
- 3 metres working width
- 4 - 12 rows. Distance: 22,5cm - 90cm
- Works with 20+ types of crops

What our customers say

"It was easier for me"

Michael Naderer owns a conventional and ecological farm with his three brothers. They almost gave up on growing sugar beets because it was too demanding for them with mechanical and manual weeding. They then looked for other solutions and decided to give FarmDdroid a try.

"It was crucial for us to invest in a FarmDroid"

Johan Tremmel has had great success with his FarmDroid FD20 on parsley and sugar beets. It is getting more and more difficult to find labor and the corona-pandemic did not make it easier. That is why it was very important for him to invest in an automatic seeding and weeding robot.

"It's easy to use and very precise!"

Anders Tornslev Bach owns "Tornslev Landbrug" with his dad. Here they have both ecological and conventional plantproduction. He highlights that the robot can do blind weeding before the plants has germinated. Also he feels more in control, because he do not need to hire or involve external help.

How it works

1

Delivery
Unpack the robot and Install the FarmDroid basestation within 10 km from the field(s)

2

Setup
Use the robot to set up the corner points of the field as well as obstacles.

3

Start seeding
Fill the seed containers, adjust the desired seed depth, seed distance, and start seeding.

4

Blind weeding
Is performed after seeding, before the crop emerges the surface, thereby reducing competition from weeds.

5

Inter and intra row
Adjust how close to the crop the FD20 should weed in the row, and start the inter- and intra-row weeding.

If we can seed it, we can weed it

When the automatic seeding and weeding robot, FarmDroid, was developed, its focus was to seed and weed sugarbeets. But since then, we have been working with farmers to use the robot for various crops and we continually test and add new types of seeds that the robot can handle.

As of today, the robot has already been successfully taking care of:

- Sugar beets
- Red beets
- Beetroots
- Spinach
- Salad
- Parsley
- Herbs
- Onions
- Rapeseed

Parsley

Onion

Red beet

Sugar beet

Cilantro

Turnips

Seed testing lab

We test different seeds in our in-house seed testing lab in collaboration with our distributors and customers.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