

# FARMDR ID

Distributed by 

# FD20

AUTOMATIC SEEDING & WEEDING ROBOT



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# 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.

FarmDroid's primary aim is to make seeding and weeding easier and more cost-effective. Secondly, FarmDroid's robots are developed for the greater good of farming by accommodating the expectations of the global community, reducing or eliminating CO<sup>2</sup> emissions, the use of agrochemicals and labour intensive, repetitive work.

Compared to other systems FarmDroid FD20 doesn't rely on expensive and complicated camera systems. It is the world's 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 between the plants in the row.

This revolution in weed management makes investing in a FarmDroid FD20 an attractive business case with a return on investment down to as little as 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 power the batteries for the electrical motors, and generate 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.

Operating a FarmDroid FD20 is completely CO2 neutral.



# High precision seeding

FarmDroid FD20 knows the position of every single plant. That's right! The FD20 places each seed in a perfect pattern and knows where each seed is located. This is all made possible though the use of high precision GPS.

Seeding depth can be adjusted for different soil types and soil conditions. The distance between seeds and the quantity of seeds in each position accommodates different crops and preferences.

FarmDroid FD20 can be configured with 4-12 rows with row widths of 22.5-90 cm.



## A robot you can trust

When the FD20 has been set up, it is capable of performing fully automated seeding. Several failsafe systems have been included to ensure that you can leave your FD20 robot in the field and trust that it will get the work done.

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

# Automatic weeding

In organic sugar beet 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 when the crop is not visible, unlike camera systems that needs to recognize the crop at a certain stage.

Three weeding wires in each row ensure weeding 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 robot's 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 to, or further from the crop. Weeding is performed in both the direction of seeding and the opposite direction to ensure highest possible weeding quality (both up and down the row).

Depending on the soil type and weed pressure, FarmDroid FD20 will greatly reduce or completely eliminate the need for manual weeding. When seeding is complete FarmDroid recommends 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  
row width:  
22.5cm -  
90cm



Works with  
20+ types  
of crops

# What FarmDroid customers say



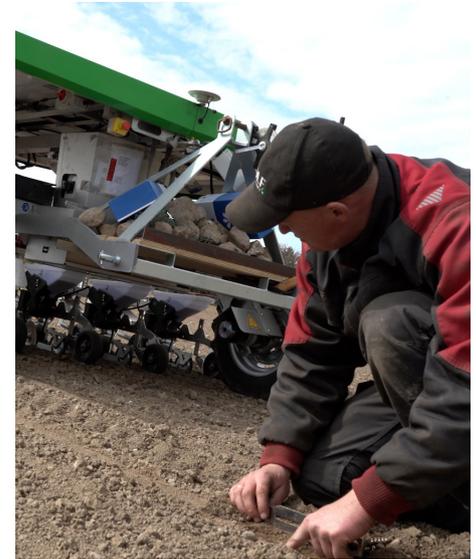
*"It was easier for me"*

Michael Naderer owns a conventional and ecological farm with his three brothers. They almost gave up on growing sugar beet because it was too demanding for them with mechanical and manual weeding. They then looked for other solutions and decided to give FarmDroid 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 beet. It is getting more and more difficult to find labour and the 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 plant production. He highlights that the robot can do blind weeding before the plants have 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  
base station within 10 km  
from the field(s)



2

## Set-up

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, 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 sugar beet. But since then, FarmDroid has been working with farmers to use the robot for various crops. Continually testing and adding new types of seeds that the robot can handle.

As of spring 2022, the robot has successfully taken care of:

- **Sugar beet**
- **Fodder beet**
- **Beetroot**
- **Spinach**
- **Salad leaves**
- **Parsley**
- **Herbs**
- **Onions**
- **Turnips**
- **Rapeseed**

Parsley



Onion



Fodder beet



Sugar beet



Coriander



Turnips



## Seed testing lab

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





FARMOR 40





# FARMDROID

Distributed by 

 *Profit from our knowledge*

OPICO is committed to support your machine throughout its working life.

A full range of genuine FARMDROID wearing parts are available from your local dealer.

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