

#### Content

ear Fellow Farmer	
armDroid in a Nutshell	2
armDroid FD20 Features	3
armDroid <b>*SEED</b>	4
ompatible Crops	5
eeding Systems: 6 mm and 14 mm	6
armDroid <b>*WEED</b>	8
eeding Tools	10
armDroid *SPRAY	12
bbot Configurations	14
avigation: 8 mm Precision	17
armDroid FD20 Powered by the Sun	18
ırmDroid Power Bank	19
eld Setup with the Field Setup Tool	20
ırmDroid App	21
ow It Works: The FarmDroid Journey	22
ırmDroid Care	24
armDroid Benefits	25
armDroid for Organic Farmers	26
ırmDroid for Conventional Farmers	28

### Dear fellow farmer,

At FarmDroid, we believe farmers deserve time to focus on what truly matters: their crops, their land, and their future. That is why we created a new way of working the field, one that empowers farmers through automation: The FarmDroid Way.

When you have a FarmDroid in your field, you no longer need to spend your days on repetitive, time-consuming tasks. With minimal monitoring, your field robot takes care of seeding, weeding, and micro-spraying patiently and precisely, powered by the sun. While your FarmDroid handles the hard work, you can focus on the parts of farming that truly add value, or you can also relax for a while.

The FarmDroid Way is more than a technology; it is a mindset. It turns sustainable, autonomous, and CO2-neutral farming into reality by combining progress with purpose and precision with freedom.

Our vision reaches beyond a single robot. We are building a smarter, more connected future where multiple FarmDroids work together across fields, sharing data and operating in perfect coordination. Each FarmDroid can already send valuable insights to your farm management system, helping you track operations, calculate costs, and optimize your profits.

The journey has already begun, and we are on the right path.

This is how we see the future of farming: sustainable, autonomous, and data-driven. A future where technology gives back what matters most to farmers: time, freedom, and new possibilities to grow.



### FarmDroid in a Nutshell

FarmDroid's fully automatic, solar powered field robot FarmDroid FD20 handles seeding, mechanical weeding, and precision spraying and giving you your time back to focus on more value-adding work.

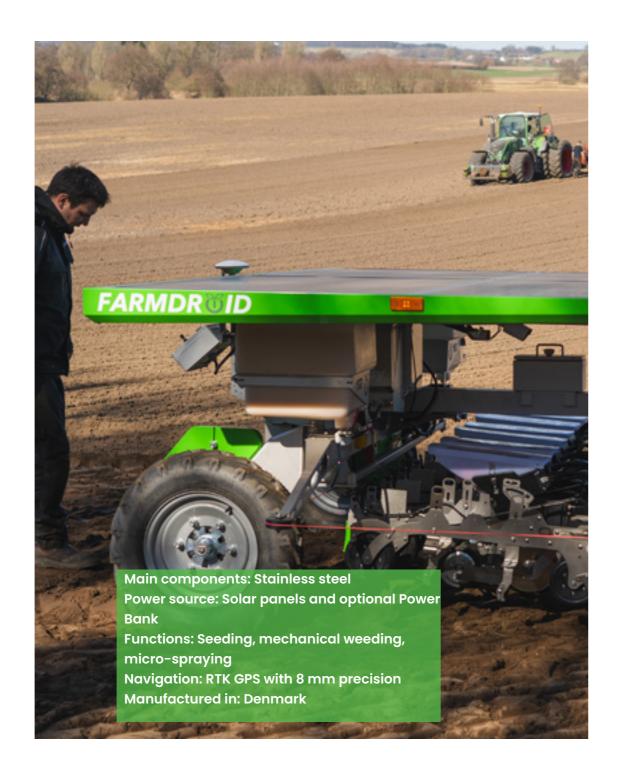
The FD20 platform is adaptable; wheel setups and row spacing can be customized to match your soil, crops, and farming practices.

Once set up, the robot runs with minimal supervision. It uses high precision RTK GPS positioning and operates with an unmatched accuracy of 8 mm! The robot knows exactly where each seed is placed and can start weeding immediately after seeding, rather than waiting for weeds to germinate and relying on vision or cameras for weed detection.

FarmDroid FD20 performs two-way mechanical weed control both between the rows and between the plants. Its precision allows it to remove weeds close to crops without causing damage, minimizing or even eliminating the need for manual weeding.

If you are a conventional farmer, you can support mechanical weeding with micro-spraying, which reduces your use of plant protection substances for up to 94%.

Four solar panels power the robot's batteries, ensuring up to 24 hours of CO2-neutral operation. On cloudy days, optional Power Banks keep the FD20 running without interruption.



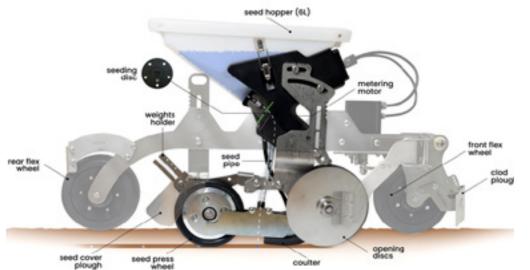


**EXCEPTIONAL 8MM PRECISION SEEDING FOR OPTIMAL GERMINATION** 

## °Seed

At the core of the FarmDroid FD20 is its precise seeding system. Once set up, the robot plans the entire field layout and places each seed with 8 mm GPS accuracy. This ensures a uniform pattern across the field, giving every plant the space it needs to grow.

The same precision allows the FD20 to start weeding even before the crops germinate. This approach keeps fields weed free right from the start, promoting optimal germination and higher yields.





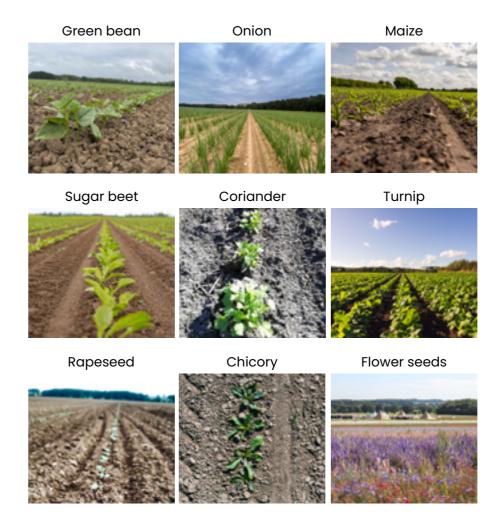
#### A Robot You Can Trust

Using FarmDroid FD20 is worry-free. The robot detects each seed it is sowing, and if a seed gets stuck or the robot runs out of seeds, it stops and sends a notification to your smartphone right away. This way, you are informed of the robot's process in real time.

Versatility is another hallmark of the FD20 seeding system. Suitable for over 100 different crops, and with adjustable row spacings starting from 22.5 cm, it's designed to cater to diverse seeding requirements.

## Compatible Crops

Today, the robot is already working with a wide range of crops, including:



...and many more!

## **Seed Testing Lab**

Our Seed Test Lab closely collaborates with farmers to experiment with new crops' compatibility with our robot's sowing system. Currently our robot can work with more than 100 different crops.





### If We Can Seed It, We Can Weed It!

Although we began our journey with a focus on seeding and weeding sugar beets, our vision has always been bigger.

We believe that precision farming is the future for a wide range of crops, and our commitment has driven us to constantly evolve and adapt. In close partnership with our customers and distributors, we've expanded the FarmDroid FD20's capabilities beyond its initial design.

The results speak for themselves. From our initial focus on sugar beet to the wide array of crops today, FarmDroid confidently ensures precision in both seeding and weeding.

No matter what you grow, FarmDroid ensures every seed is placed with care and consistency. Our two +Seed systems make sure you get the perfect setup for your crops, whether the seeds are big or small.

## +Seed 6 mm Seeding System for Small Seeds

The original +Seed 6 mm seeding system has a proven track record with smaller crops such as flower seeds, rapeseed, lettuce, endives, chicory, cabbage, onion, spinach, sugar beet, red beet, fodder beet, and more. If you grow crops that are 0.5 mm to 6 mm in size, the +Seed 6 mm is your ideal match!





Seed examples: flower seeds, rapeseed, lettuce, endives, chicory, cabbage, onion, spinach, sugar beet, red beet, fodder beet, and more.

Seed container size: 5 liters

Row spacing from: 22.5 cm

## +Seed 14 mm Seeding System for Bigger Seeds

Our newest seeding system, +Seed 14 mm, makes it possible to grow crops such as soy beans, green beans, field beans, chickpeas, maize, and more.

It gives you the flexibility to grow a wider range of crops, use the robot multiple times throughout the year, and make the most of your investment. For example, with this larger seeding system, you can sow onions in spring, beans in summer, and rapeseed in autumn.

Therefore, if you value versatility in your farming and would like to grow crops that are 0.8 mm to 14 mm in size, the +Seed 14 mm is your ideal match!





Seed examples: rapeseed, lettuce, endives/chicory, cabbage, onion, spinach, sugar beet, red beet, fodder beet, soy beans, green beans, field beans, chickpeas, maize, and more.

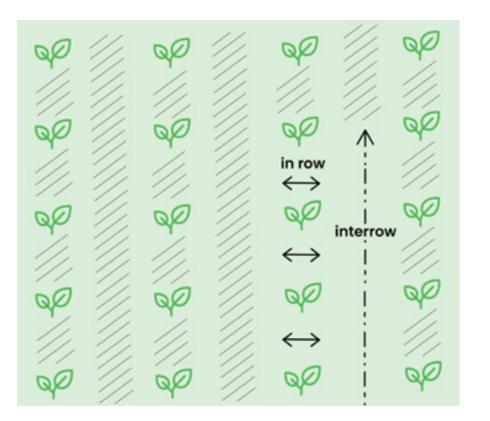
Seed container size: 7 liters

Row spacing from: 25 cm

#### CROP PROTECTION WITH MECHANICAL WEEDING

## •Weed

FarmDroid's ability to start blind weeding even before crops emerge is a unique feature in farming that sets it apart from other solutions. While systems relying on camera technology require visible crops to differentiate them from weeds, FarmDroid FD20 knows the exact position of each seed it has sown, and therefore can perform mechanical weeding right after seeding. This capability keeps fields weed-free from the start, significantly reducing the need for labor-intensive and costly manual weeding. With fewer weeds, farmers can achieve healthier crop growth, higher yields, and lower operational costs.





## Two-Way Weeding: Between the Plants and in Between the Rows

The FD20 tackles weeds in two ways: between the plants and between the rows. For inter-row weeding, the robot uses a variety of specialized tools, which are explained on the following page. To remove stubborn in-row weeds, the robot employs an electrically operated weeding knife that moves dynamically in and out of the rows.



## Weeding Tools: Tailor Your Weeding Setup to Your Fields

Every farm and every weeding setup is unique. With FarmDroid's flexible tool combinations, you can configure your robot to match your soil type, crop, and field conditions. Our range of precision-engineered soil tools can be mixed and matched in countless ways to achieve optimal results. Together with our robot specialist, you can find the tool combination that best fits your fields and operations.

#### **Pre-Cutting**

FarmDroid's weed cutting discs make a precise pre-cut along the crop rows, loosening the soil and pushing it away from the plants. This gives the inter-row tools room to work right up close to the crops, achieving a full undercut between the rows without weeds building up on the tines.

#### **Weed Cutting Discs**

The weed cutting discs allow precise weeding close to crop rows, protecting young plants during early growth stages. The adjustable 155 mm curved discs break the soil on each side of the row without covering emerging crops with soil clumps. They can be adjusted in gap (0–50 mm), angle (0° to 10°), and working depth (0–30 mm) for tailored weeding performance.

#### **Notched Weed Cutting Discs**

The notched weed cutting discs deliver extra cutting power for accurate weeding close to the crop row. The notched edge improves soil penetration, ensuring consistent weed removal even in hard, crusted, or compact soils. The 155 mm discs are fully adjustable in gap (0–60 mm), angle (7° to 19°), and depth (0–45 mm), allowing you to fine-tune performance for your field and soil conditions.



#### In-row Weeding

#### **Weeding Knives**

The weeding knives move in and out of the rows, effectively removing in-row weeds between plants. The sharp knives cut weed roots, while the small hooks at the tips pull them from the soil. A minimum seed spacing of 10 cm is required for effective operation.

#### Inter-row Weeding

#### **Weeding Wires**

The weeding wires remove weeds between the rows, leaving neat, clean lines across the field. Each wire is 4 mm in diameter and covers a 20 cm working width. They are strategically positioned on the robot to help your crops thrive in weed-free conditions.

#### L-share

The L-share cuts across the full soil width and is ideal for controlling deeply rooted weeds such as thistles. With a working width of 14 cm, it ensures thorough weed removal while maintaining stable performance across varying soil conditions.

#### A-share

The A-share covers a 16 cm working width and serves as an alternative to the L-share or weeding wire. Its more aggressive design ensures strong ground penetration and reliable performance in heavy or dry soils where extra cutting force is needed.

#### The Most Used +Weed Combinations

#### Combination 1: typically used for row distances up to 30 cm

Weed Cutting Discs Weeding Knives Weeding Wire



#### Combination 2: typically used for row distances of 30 cm and above

Notched Weed Cutting Discs Weeding Knives

L-Share



#### 94% REDUCTION IN PLANT PROTECTION SUBSTANCES

## <sup>o</sup>Spray

FarmDroid +Spray offers conventional farmers a unique advantage by combining mechanical weeding and micro spraying. The FarmDroid FD20 equipped with the +Spray system fights herbicide resistance while helping farmers adapt to increasingly strict regulations on plant protection substances.

Like the +Seed and +Weed systems, the FarmDroid +Spray system uses RTK GPS technology to apply plant protection substances in micro doses directly onto plants or the soil in between them. This method reduces chemical usage by up to 94%, promoting healthier crops, cutting operational costs, and benefiting the environment.

The FarmDroid +Spray system can be used for both micro-spot spraying and band spraying, during both seeding and mechanical weeding operations. +Spray has a tank capacity to operate approximately 24 hours daily when spot spraying and 12 hours when band spraying.

#### Precise, Autonomous Spraying

Working fully autonomously, the +Spray system continuously monitors the spraying process, alerting farmers via notifications on the FarmDroid app, such as low liquid levels that require refilling. This allows for better planning and gives the farmers the freedom to work with a self-functioning system.

The FarmDroid +Spray features innovative PWM (Pulse Width Modulation) electric nozzles that apply minimal dosages with exceptional accuracy, ensuring that the exact amount of product is micro-sprayed where needed. FarmDroid +Spray automatically flushes the nozzles with clean water when in standstill mode or after spraying, preventing substances from drying out in the nozzles.

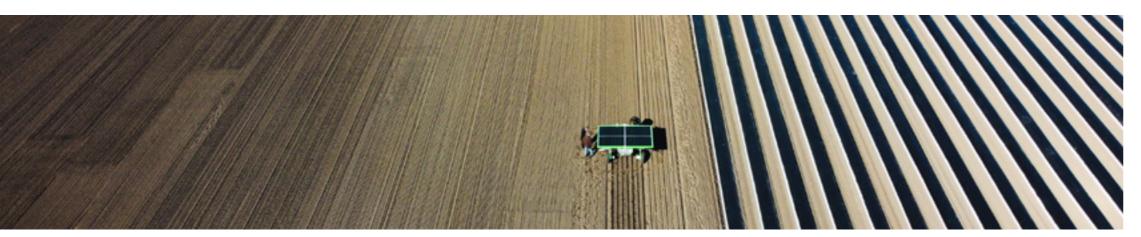






## **Almost Unlimited Robot Configurations**

FarmDroid can be adapted to over 100 different crops. The robot can be configured with row spacing starting from 22.5 cm and all the way up to 100 cm, giving you full control to match your specific crop and field layout. Whether you're working with narrow-spaced crops like onions or wider-spaced crops like maize, the robot adapts to your needs.



## Custom Row Spacing for More Than 100 Crops

With FarmDroid, you have the flexibility to create the configuration that fits your operations. For example, when sowing maize, you can choose 4 rows with 75 cm row spacing or 6 rows with 50 cm row spacing.

Here are a few more common configurations used by our farmers:

#### **Onions**

8 rows, 25/50 cm row spacing – 300 cm working width 6 rows, 30 cm row spacing – 210 cm working width 6 rows, 31 cm row spacing – 225 cm working width 5 rows, 35 cm row spacing – 212.5 cm working width

#### **Endives**

8 rows, 36 cm row spacing – 288 cm working width 9 rows, 36 cm row spacing – 324 cm working width

#### Chicory/sugar beet

6 rows, 50 cm row spacing - 300 cm working width

#### **Green beans**

6 rows, 45 cm row spacing – 270 cm working width 6 rows, 50 cm row spacing – 300 cm working width

#### Maize/corn

4 rows, 75 cm row spacing – 300 cm working width 6 rows, 50 cm row spacing – 300 cm working width

## **Custom Wheel Configurations**

Every field is different, and so is every FarmDroid. The FD20 can be tailored to your specific conditions with adjustable wheel distances, row numbers, and a choice of three front wheel configurations: Passive Front Wheel, Dual Front Wheel, and Active Front Wheel.

Your ideal setup depends on several parameters, including crop type, row spacing, soil conditions, and the slope or angle of your field. To match these variations, the FD20's dual back wheels can be adjusted between 160–230 cm in 10 cm increments.

With the right wheel configuration, your FarmDroid achieves optimal stability, precision, and efficiency across any terrain.

#### 1. Passive Front Wheel

The standard wheel configuration provides stability and smooth guidance on flat terrain. Ideal for crops with even row counts and wider row spacing, such as sugar beets (45–50 cm).

#### 2. Dual Front Wheel

Equipped with two front wheels instead of one, this setup enhances balance and precision, particularly for crops with narrow row spacing down to 22.5 cm. Perfect for flat fields and bed systems, the Dual Front Wheel configuration works well with both even and uneven row counts. It can be selected for new robots or retrofitted to existing ones.

#### 3. Active Front Wheel

For hilly terrains, the Active Front Wheel configuration adds an actuator that automatically tilts the front wheel to maintain stability. This intelligent tilting system distributes weight evenly across the back wheels, improving traction and minimizing front-end impact. Recommended for slopes above 8% and side inclines over 5%, and for crops with even row numbers and wider spacing (around 45–50 cm).

With these configuration options, you can fine-tune your FarmDroid to match your terrain, crops, and working style. Our robot specialists are always ready to help you design the setup that fits your farm best.





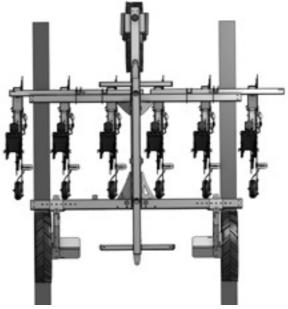


## **Example Robot Configurations**

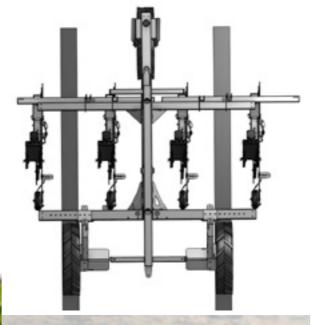
Onion: 8 row, 25-50 cm, 3000 mm, working width, 1600 mm wheel distance.



Chicory: 6 row, 50 cm, 3000 mm working, width 2000 mm wheel distance.



Maize: 4 row, 75 cm, 3000 mm working width, 1600 mm wheel distance.



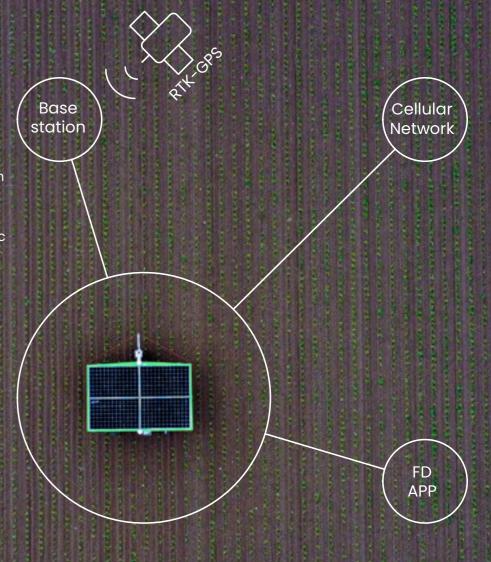


## Navigation: Exceptional 8 mm Precision in Seeding, Weeding, and Spraying

The FarmDroid FD20 delivers unmatched navigational accuracy down to 8mm, thanks to its high-precision RTK GPS system connected to a dedicated base station. This ensures its operations remain seamlessly precise to the millimeter, setting a new standard in robotic farming.

Offering such precise accuracy requires the robot to operate at a slow and steady speed of 450-950 m/h, allowing it to optimally sow seeds and mechanically weed around them immediately after seeding. This "blind weeding" capability allows farmers to maintain clean fields from the very start, ensuring efficient and effective weed management.

The FarmDroid FD20's precision doesn't stop at seeding and mechanical weeding. With its retrofittable +Spray system, the robot applies plant protection substances with the same level of accuracy, micro-spraying directly onto plants or the soil around them. This precision reduces chemical use by up to 94%, ensuring targeted weed control while promoting healthier crops and protecting the environment.





## FarmDroid FD20 Powered by the Sun

At a steady pace of 950 meters per hour, the FarmDroid FD20 covers up to 6 hectares per day and is ideal for up to 30 hectares per growing season. Powered entirely by the sun, the robot eliminates the need for refueling or recharging, operating independently without constant supervision. Once in the field, the FD20 makes it its home for the season, giving you more time to focus on more important tasks.

Equipped with four high-efficiency solar panels delivering 1.6 kWp, the FD20 converts sunlight into power for its two batteries, ensuring CO2-neutral operation day and night.

In early spring, when sunlight is limited, daily energy production typically reaches around 5 kWh, increasing to up to 13 kWh in late spring and summer. With an average power consumption of around 550 W, this provides approximately 9 hours of operation in early March and up to 24 hours in May under favorable conditions.

## Extend Your Runtime with the FarmDroid Power Bank

For regions with frequent cloudy days or extended operating needs, the FarmDroid Power Bank ensures your FD20 keeps working, even when the sun takes a break. The Power Bank can be recharged via solar panels or at home, giving you the flexibility to maintain uninterrupted field operations no matter the weather.

Actual runtime will vary depending on field conditions such as soil type, plant density, and terrain. For most users, the Power Bank provides approximately 10–12 hours of additional operation, offering peace of mind and continuous performance throughout the season.





## Easy Guided Setup with the Field Setup Tool

Preparing your field is simple with our Field Setup Tool. Its lightweight, ergonomic design makes it easy to carry around, and its battery-powered functionality enhances portability. The Field Setup Tool pairs seamlessly with your smartphone and connects to the FarmDroid App, guiding you through mapping the corners and obstacles of your field.



Take the Field Setup tool to your field



Record corner points and obstacles

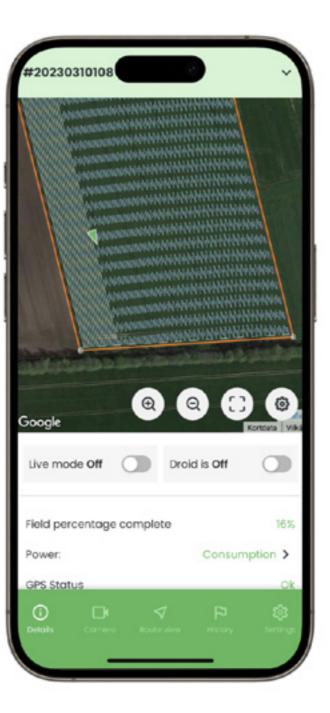


Connect to your FarmDroid



your FarmDroid





## Stay Connected to Your Robot Anytime, Anywhere with the FarmDroid App

Experience the future of farming management with the FarmDroid App. This mobile application serves as your virtual window to the FarmDroid FD20, keeping you informed and in control, no matter where you are.

With the FarmDroid App, you can track your robot's location and receive updates via email, SMS, or push notifications tailored to your preferences. Need to troubleshoot or check on operations? Skip the drive to the field—just tap the app to access your robot's live camera feed and monitor its progress and current tasks.

The app also allows you to set up your field directly from your phone using the Field Setup Tool and connect with the FarmDroid Care support team in the unlikely event of an operational hiccup.



## How It Works: The FarmDroid Journey

Are you wondering what it means to be on a journey with FarmDroid? At its core, the FarmDroid journey is built on close collaboration with our local partners, who support you every step of the way.

#### Contact & configurations We help you configure the



#### Field setup

Our local partner guides you to mark your field's corner points and obstacles in your

#### Seeding

Fill the seeds in the seed containers, set the desired seed depth and distance. You're ready to start seeding.



#### Mechanical weeding

Adjust the robot's weeding proximity to the plants and initiate weeding both within the row and between the plants.

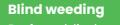
#### Micro spraying

If you are a conventional



Support and maintenance





Perform blind weeding right after seeding, before the crop germinates. By doing so, you let the plants germinate without competition from weeds.





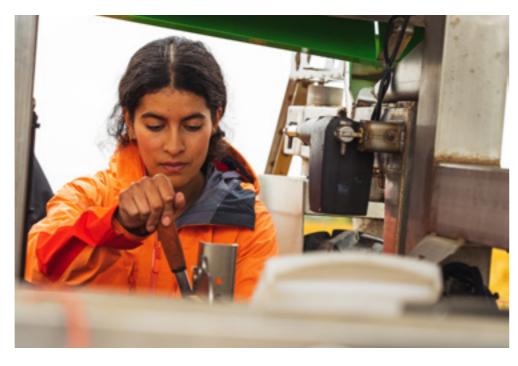
## FarmDroid Care: Guiding Your Robotic Farming Journey

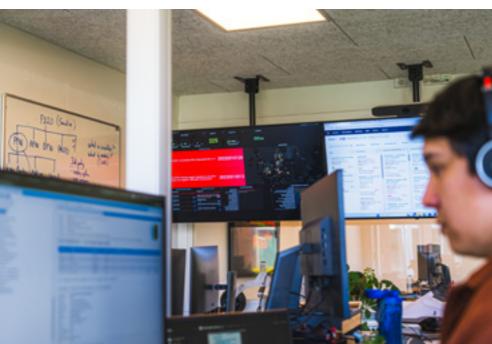
Switching from a tractor to a robot may sound complex, but with FarmDroid Care and our local partners, the transition is smooth and straightforward. When you reach out to us, you'll meet dedicated experts ready to answer your questions, guide your setup, and get your FarmDroid up and running. With us, you're never alone in the field; support is always just a click away.

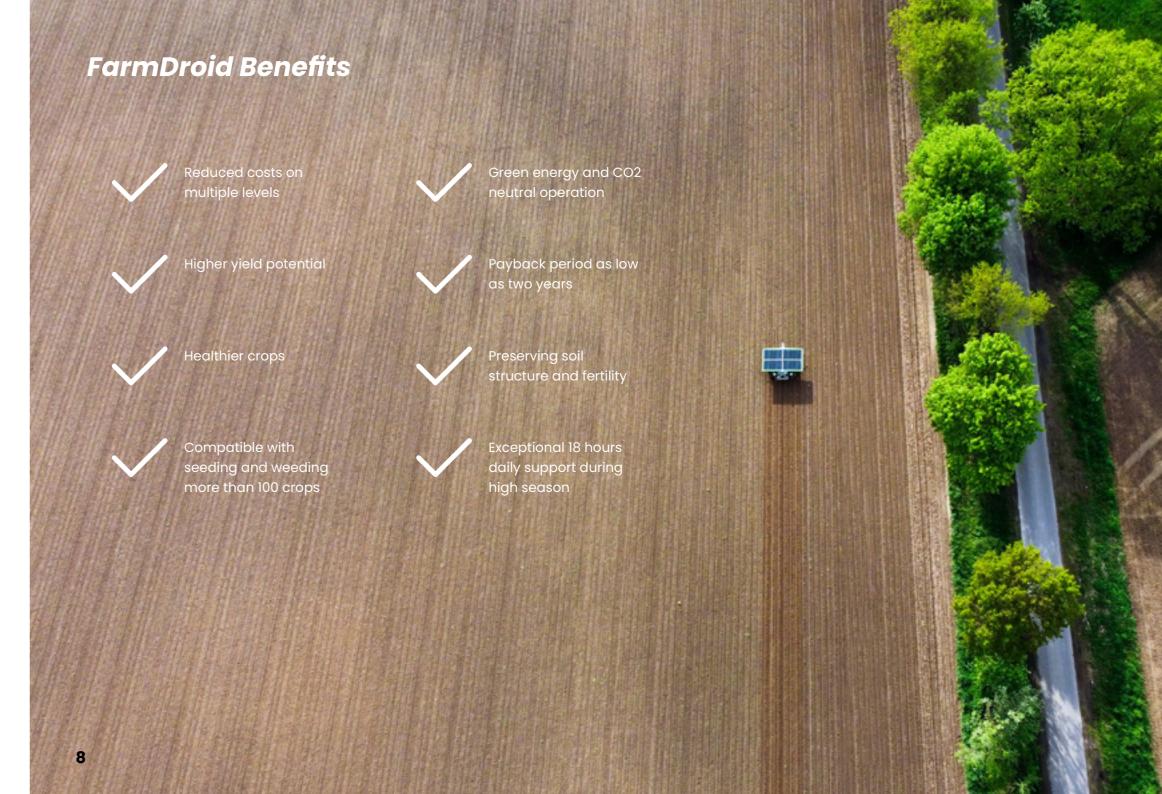
Our team can remotely access all robot systems to provide quick assistance and keep your operations running without interruption. Together with our partners, we offer service plans designed for peace of mind, helping your farm thrive throughout the season.

FarmDroid Care and our local partners are united by one mission: supporting our users every step of the way.

Are you considering bringing robot technology to your farm? Take the leap with confidence, because FarmDroid Care is your reliable partner, always by your side to ensure success in the field.







## FarmDroid for Organic Farmers: Harness the power of precision farming to grow healthier, organic crops

## FarmDroid Seed Weed

FarmDroid is an ideal solution for organic farmers, offering a sustainable and efficient way to manage fields. The two most relevant functions for organic farming are FarmDroid +Seed for precision seeding and +Weed for mechanical weeding.

Using 8mm GPS precision, the FarmDroid FD20 sows seeds at exact intervals and optimal depths, ensuring perfect crop spacing for better crop growth and yield. Even before the crops sprout, the FD20's two-way mechanical weeding system removes weeds by targeting the spaces both between plants and between rows. This process drastically reduces the hours spent on manual weeding—one of the most labor-intensive tasks in organic farming! With the FarmDroid FD20, organic farmers can maintain clean fields, improve crop yields, and focus on what matters most: growing healthy, sustainable produce.



## **Success Stories of Organic Farmers**



#### Tjele Gods quadruples its robot fleet

At Tjele Gods, an organic farm located in Denmark, fodder beets have gained a more prominent role in the crop rotation. This is due to a strategic commitment to supply the estate's 1650 organic dairy cows with energy-rich and climate-friendly feed. A central part of this strategy is the investment in FarmDroid field robots, which now play a significant role in managing the farm's 93 hectares of fodder beets.

Steffen Rohde Døssing, operations manager at Tjele Gods, explains the background for the increased commitment: "Beets are an efficient fodder crop with a high energy content and good digestibility. They also combine well with grass silage, which we ensile them with." He continues: "We budget for 13,000 feed units per hectare, and we've expanded the area this year."

Tjele Gods acquired its first FarmDroid in 2022. The experiences from subsequent seasons were positive, particularly regarding precision in sowing and efficiency in weed control without the use of chemicals. This success has now led to a significant expansion, so that by the 2025 season, the estate will operate a total of five FarmDroid robots.

The FarmDroid robots perform both precise sowing of beet seeds and automatic row cleaning both in the row and in between plants. This reduces the need for manual hours in the field and ensures that the beets can grow unhindered by weeds. Steffen Rohde Døssing highlights the robots' fossilfree operation, powered by solar cells, as a good synergy with the farm's organic profile.

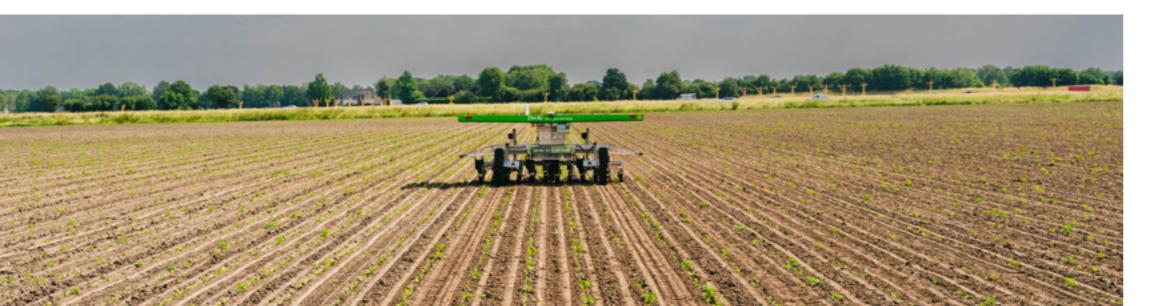
## FarmDroid for Conventional Farmers: Optimize your results through high precision seeding and hybrid weeding

## FarmDroid Seed Weed Spray

As a conventional farmer, you may face challenges like herbicide resistance, high costs of plant protection substances, and stricter regulations on their use. To address these issues, we have developed a hybrid solution that enables you to stay ahead of the curve with our next-generation technology.

Like organic farmers, conventional farmers can utilize the FarmDroid +Seed system for high-precision seeding and the +Weed system for mechanical weeding. However, what distinguishes the FarmDroid FD20 for conventional farmers is its micro-spraying system, +Spray.

The FD20's hybrid weeding system combines 94% mechanical weeding with just 6% spraying, helping you tackle the challenges mentioned above. After sowing seeds with 8mm GPS accuracy, the robot performs mechanical weeding several times throughout the season, targeting most weeds around the crops, even before they germinate. For any remaining weeds or specific crop care, the FD20's +Spray function applies minimal amounts of plant protection substances directly onto the plants or the soil in between them, saving you up to 94% on material costs. This method promotes healthier crops and soil while allowing you to comply with regulations even before they take effect.



### **Success Stories of Conventional Farmers**



#### Future proofing chicory cultivation with FarmDroid

For arable farmer Jack Simons in the Netherlands, the future of his chicory crop came down to a simple choice: stop growing it or innovate in a significant way. Faced with diminishing herbicide options and mounting weed pressure, Jack chose to innovate. His decision to invest in a FarmDroid FD20 has not only secured his chicory cultivation but has also laid the groundwork for a more sustainable and efficient future for his entire 60-hectare farm.

Jack's first experience with the FarmDroid was during the seeding of 12 hectares of chicory. He was immediately impressed by the robot's precision. "My first impression of the FarmDroid was that it seeded really precise," he says. "Exactly every ten centimeters, there was a seed. Which is really proper".

The robot's autonomy also quickly proved its value. The seeding process for the entire 12 hectares was completed in just four and a half days, running continuously. "It never stopped, it could really run 24/7," Jack notes, expressing his surprise that the solar-powered batteries kept the robot going all through the night. He calls it a "reliable machine" you can trust to work on its own.

After a successful first year with chicory, Jack is already making plans to expand his use of the FarmDroid. "Next year I want to use the FarmDroid in both chicory and sugar beets," he states. The plan is to increase from 12 to 15 hectares of chicory and add 9 hectares of sugar beets to the robot's workload.

# FARMDRÜID

Industrisvinget 1 - 6600 Vejen - Denmark

Mail: info@farmdroid.com

Phone: +45 8863 8766

www.farmdroid.com









