



Husqvarna



# Autonomous mowing solutions for Golf & Sports









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# Our history: innovation landmarks



1689  
Husqvarna is  
founded



1903  
Combustion &  
electric engines



1995  
The first  
Automower®



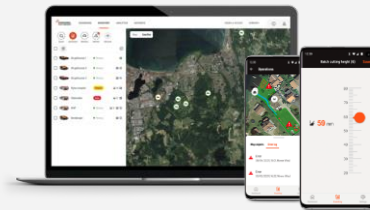
2012  
Battery  
innovations



2022  
CEORA™



1959  
The first  
chainsaw



2016  
Husqvarna Fleet  
Services™



2019  
Autonomous  
technology





# Autonomous solutions for golf courses



Husqvarna



# CEORA™ – a new standard in large area mowing

- For areas of up to 50,000 m<sup>2</sup>  
(depending on turf quality requirements)
- Systematic cutting
- Cutting results comparable to cylinder mowing
- No physical wires
- Fully modular system





# Automower® – for smaller and more complex areas

- For areas of up to 10,000 m<sup>2</sup> (depending on turf quality requirements)
- Systematic or irregular cutting pattern
- Cutting results comparable to cylinder mowing
- Wire or wire-free installation





# Husqvarna robotic mowers for different areas



CEORA™ with low cut deck  
Large, flat areas  
Fairway, semi-rough and rough



Automower® 535 AWD  
Very steep areas  
Semi-rough, rough and  
surrounding areas







Automower® 550 EPOS, 550, 520  
Steep and complex areas  
Fairway, semi-rough, rough and  
surrounding areas



# Husqvarna robotic line-up







## AUTOMOWER® 520

 Up to 2.400 m<sup>2</sup>  
 45%  
 10\*-60 mm  
 13.3 kg





Navigation system:  
 Irregular  
 Boundary type:  
 Wire

## AUTOMOWER® 535 AWD

 Up to 3.500 m<sup>2</sup>  
 70%  
 30-70 mm  
 17.0 kg





Navigation system:  
 Irregular  
 Boundary type:  
 Wire

## AUTOMOWER® 550

 Up to 5.000 m<sup>2</sup>  
 45%  
 10\*-60 mm  
 13.5 kg





Navigation system:  
 Irregular  
 Boundary type:  
 Wire

## AUTOMOWER® 550 EPOS

 Up to 10.000 m<sup>2</sup>  
 45%  
 10\*-60 mm  
 14.4 kg





Navigation system:  
 Irregular or systematic  
 Boundary type:  
 Wire free

## CEORA™ 544 EPOS + RZ 43M/L

 up to 40.000 m<sup>2</sup>  
 20%  
 20-70/10-60 mm  
 72 kg

Navigation system:  
 Systematic  
 Boundary type:  
 Wire free

## CEORA™ 546 EPOS + RZ 43M/L

 up to 50.000 m<sup>2</sup>  
 20%  
 20-70/10-60 mm  
 72 kg

Navigation system:  
 Systematic  
 Boundary type:  
 Wire free

\*Equipped with Fairway kit



# Memmingen 18-hole Golf Course, Germany

Fairway  
= 122,000 m<sup>2</sup>

Semi-rough  
= 93,000 m<sup>2</sup>



# Memmingen Golf Course, Germany

8x

**CEORA™ 546 EPOS + RZ 43M**

Wire-free installation



2x

**AUTOMOWER® 550 EPOS**

Wire-free installation



4x

**AUTOMOWER® 535 AWD**

Wire installation



5x

**EPOS  
REFERENCE  
STATION**



Fairway = 122,000 m<sup>2</sup>

Semi-rough = 93,000 m<sup>2</sup>



# Husqvarna Automower® – for single pitches and smaller or more complex areas

- For areas up to 10,000 m<sup>2</sup> depending on turf quality requirements
- Systematic or irregular cutting
- Superb results
- Wire or wire-free installation





# Husqvarna solutions for sports fields

≈ 7,500 m<sup>2</sup>



OR



OR



**2x** AUTOMOWER® 550 EPOS

Wire-free installation

**1x** CEORA™ 544 EPOS + RZ 43M

Wire-free installation

For more free time on the field

**3x** AUTOMOWER® 550

Wire installation

Husqvarna's Club Solution



# Husqvarna solutions for sports fields

≈15,000 m<sup>2</sup>



OR



OR



**1x CEORA™ 544 EPOS + RZ 43M**  
Wire-free installation

**4x AUTOMOWER® 550 EPOS**  
Wire-free installation

**1x CEORA™ 546 EPOS™ + RZ 43M**  
Wire-free installation  
For more free time on the field

*Recommended setup enables 6–12 h a day for practice and games.*



# Husqvarna solutions for sports fields

≈ 30,000 m<sup>2</sup>



OR



**2x CEORA™ 544 EPOS + RZ 43M**

Wire-free installation

**2x CEORA™ 546 EPOS + RZ 43M**

Wire-free installation

*Recommended setup enables 6–12 h a day for practice and games.*



# Key benefits with Husqvarna autonomous solutions

- Premium turf quality
- Multiple mowing heights
- Reduced operating cost
- Free up time for detail work
- Increased safety
- Reduced carbon footprint
- Low noise emissions
- Player satisfaction





# Pivoting razor cuts for a premium turf

Cutting the grass every day, with razor-sharp blades, results in healthier grass and a consistently dense and strong turf





# Premium turf quality – proven by research

*“We have been testing Automower® robotic mowers for five years at our research centre. **The turf is denser, finer and uniform and always cut at the same height.** My recommendation is absolutely to try robotic mowers.”*

Marco Volterrani, Head of Centre for Research on Turf grass for Environment and Sports at PISA University, Italy



## PISA UNIVERSITY

Tests on warm season species, started 2016



# Premium turf quality – proven by research

*“The first results of our study that investigates the grass quality after using ordinary rotary mowers vs. robotic mowers are positive. **We see the same high turf grass quality with the robots as we see with the traditional mowing.**”*

Karin Juul Hesselsøe, Researcher at NIBIO, Norway



**NIBIO (Norwegian Institute of Bioeconomy Research)**  
Tests on cold season species, started 2020

Scandinavian Turfgrass and  
Environment Research Foundation

The logo for Sterf, featuring the word "Sterf" in a stylized, green, cursive font.



# Premium turf quality – proven by research



*“The test compared traditional mowing with robotic mowing on professional sports turf. The results is that in every case the turf offers an equal quality. In some variation we have even a **significant better turf grass quality than with traditional machines.**”*

Prof. Martin Thieme-Hack, Hochschule Osnabrück, Germany

**ILOS (Institute für Landschaftsbau, Sportfreianlagen und Grünflächen), Hochschule Osnabrück**  
Tests on cold season species, started 2019



STUDIE

Automatisierte Rasenpflege auf Golfplätzen  
– Hinweise für Betreiber von Golfanlagen –

**ILOS**  
Institut für Landschaftsbau  
Sportfreianlagen und Grünflächen  
In Science to Business GmbH -  
Hochschule Osnabrück

Bearbeitung:  
Jan Rosenbüsch, M.Eng.

Projektleitung:  
Prof. Martin Thieme-Hack  
Prof. Dr. Wolfgang Prämeling



# Premium turf quality – proven by experts

*“The machines are working wonderfully. We’ve even experienced better quality than we expected. Husqvarna provides us with a comprehensive solution. We lease the machines and get help, from A to Z.”*



**Clas Christensson**  
Club Manager, Skövde Golf Club  
Sweden



# Premium turf quality – proven by experts



**Stefan Cårebo**

Turfgrass Consultant for the  
Swedish Football Association  
Sweden

*“It’s a machine that will be helpful for many clubs – partly due to its capacity – so that a football pitch can be mowed more quickly. You can also mow several football pitches. It opens a lot of possibilities especially for smaller clubs who may not be able to mow as frequently. If a pitch is mown more frequently, you get a better pitch and a better surface.”*



# Premium turf quality – proven by experts



**Patrick Boisseau**

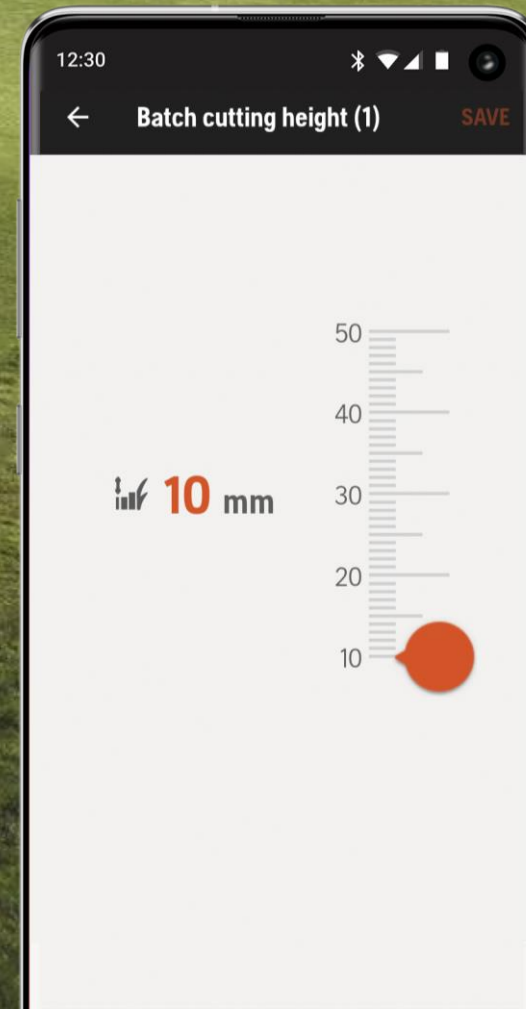
Head of Greenkeeping,  
National Football Center,  
France

*“Since we started using Automower® robotic mowers at CNF Clairefontaine we have noticed an improvement in grass quality, in both density and thinness, thanks to frequent mowing. They are very useful in winter when conditions are harder for traditional mowing methods.”*



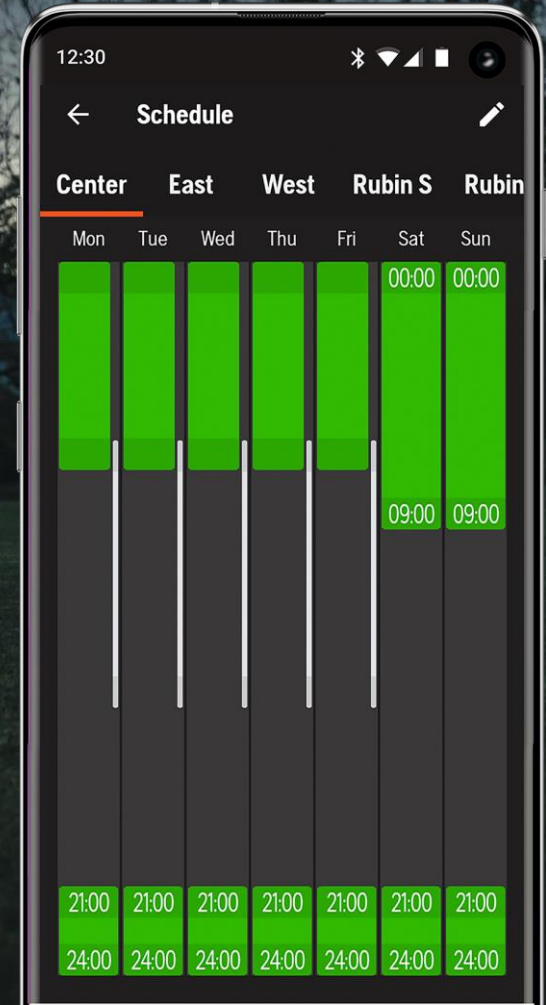
# One mower – multiple mowing heights

- Multiple areas
- Easy scheduling



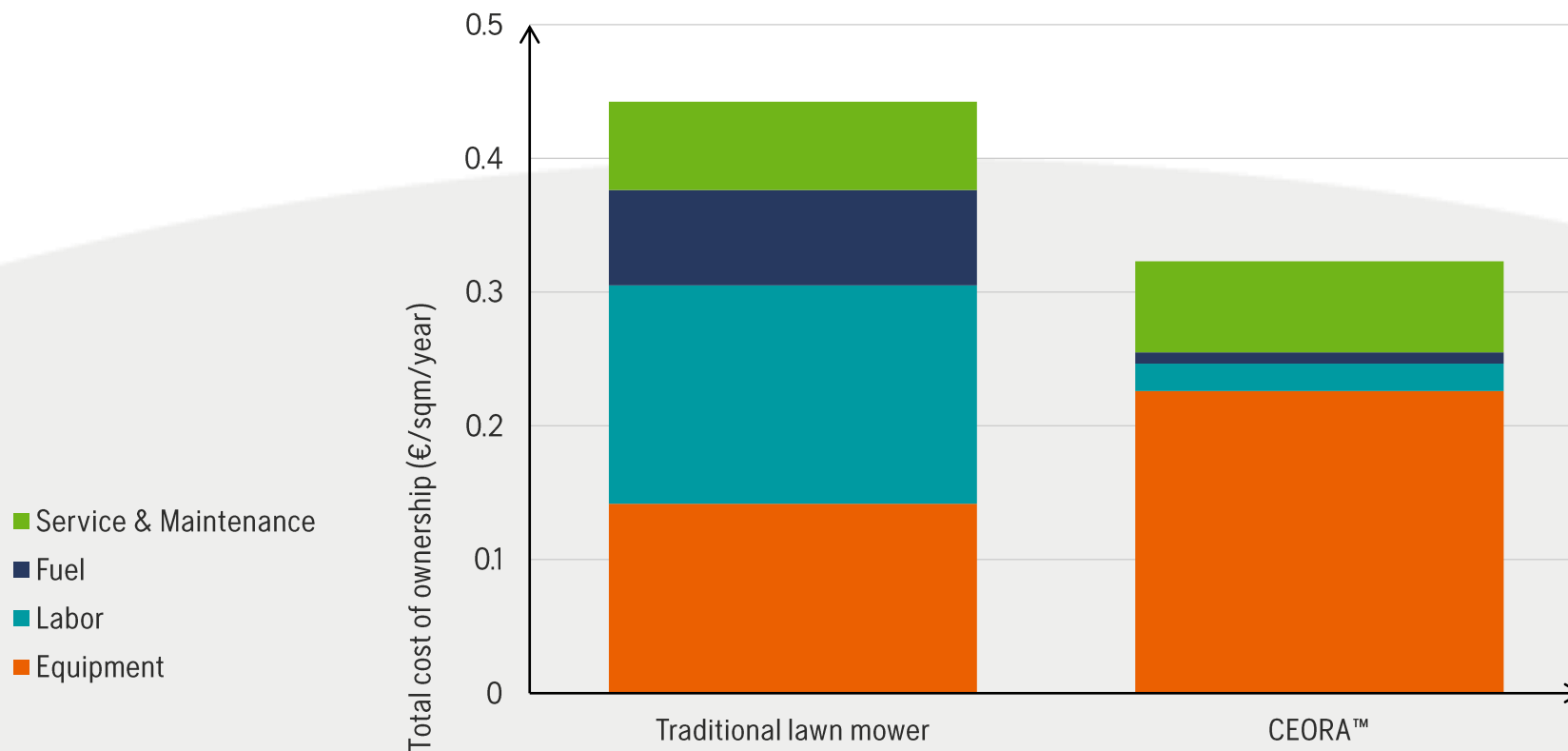


# Schedule the mowing for optimised convenience





# Lowering your total cost of ownership





# The freedom to focus on more vital tasks...



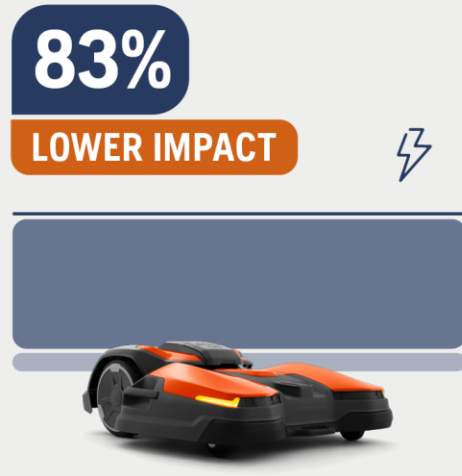


**...while adding safety to your staff**

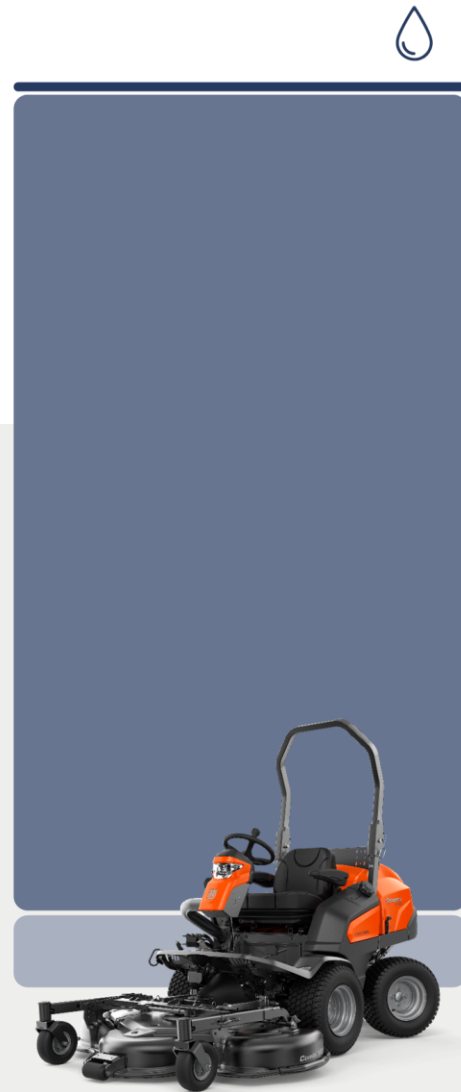




# Reduce your carbon footprint



**CEORA™ 546 EPOS™**  
297 kg CO<sub>2</sub>e / season



**Front mower P 525DX**  
1770 kg CO<sub>2</sub>e / season

- Electricity, EU mix
- Diesel
- End of life
- Use phase
- Production



# Reduce the noise pollution



The soundscape of the robotic mower



The soundscape of the fuel-driven mower

- 85–90 dB(A) | Diesel truck
- 75–85 dB(A) | Vacuum cleaner
- 60–75 dB(A) | Conversational speech
- 40–50 dB(A) | Quiet neighborhood



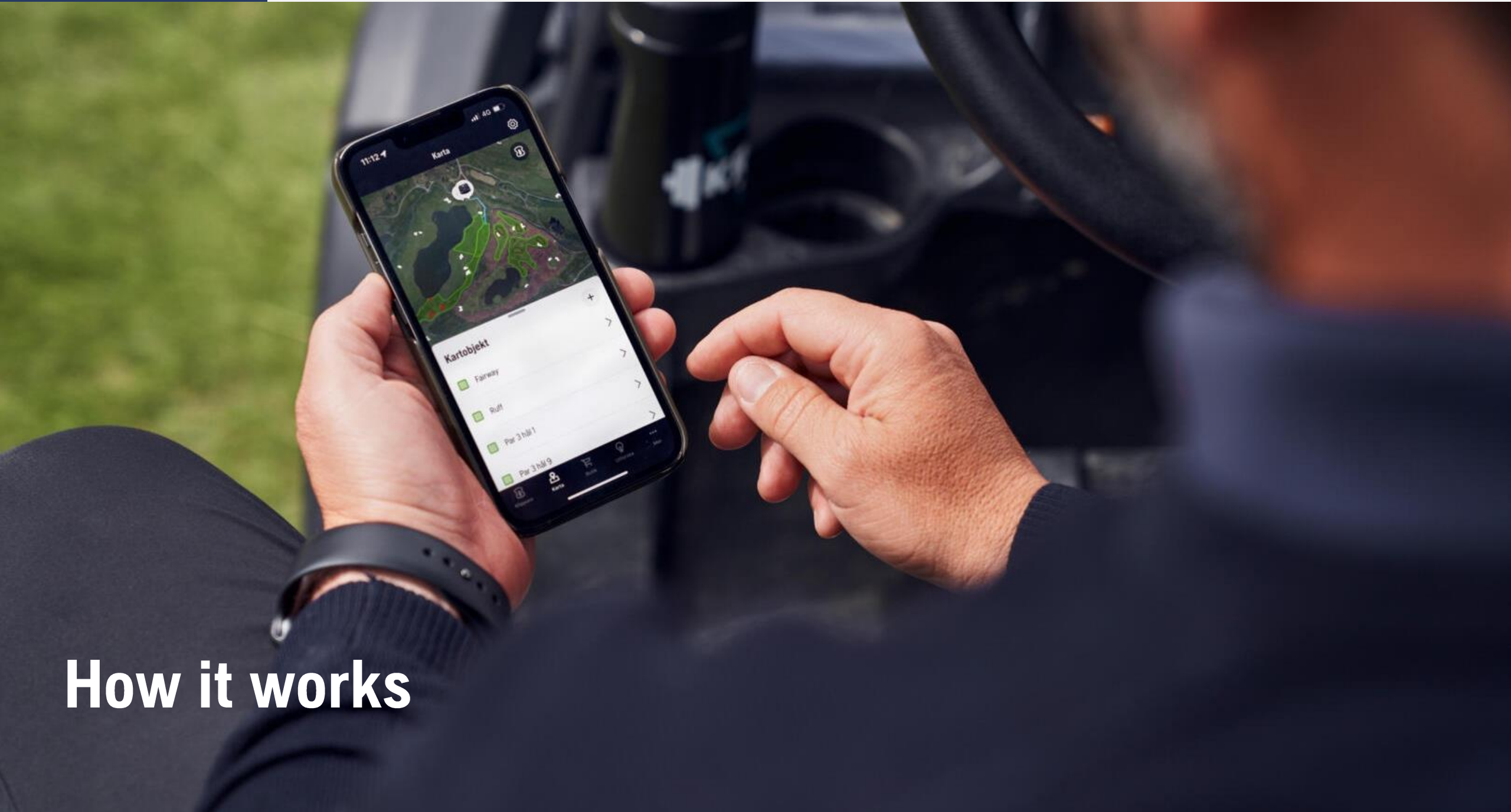
# Player satisfaction

- Excellent playing conditions
- Less distractions
- Less grass clumps and visual clippings
- A better overall experience

“We did a survey asking the players about their attitudes towards the robots, and the majority were positive or neutral about the robots.”

Karin Juul Hesselsøe, Researcher at NIBIO  
(Norwegian Institute of Bioeconomy)





# How it works





Satellite signals

Satellite signals

Correction data



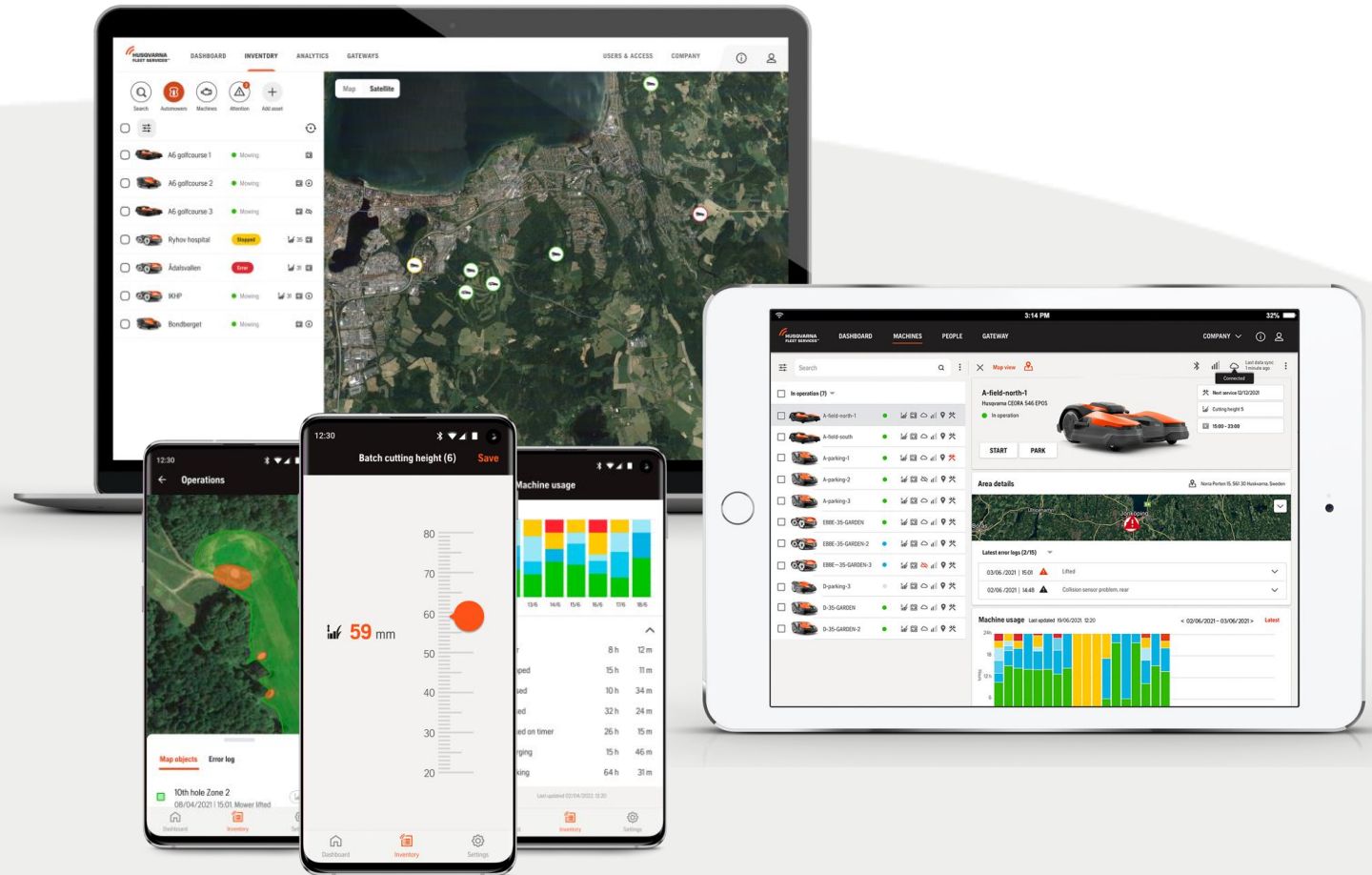
Limitations: Unimpeded sky view and radio coverage



# Remote control with Husqvarna Fleet Services™



- Monitor location
- Get information and statistics
- Change schedule and mowing height
- Service and fault notifications







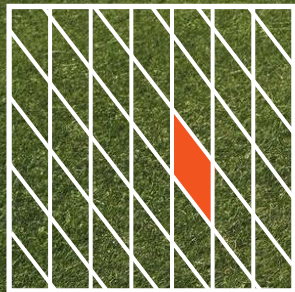
PARALLEL



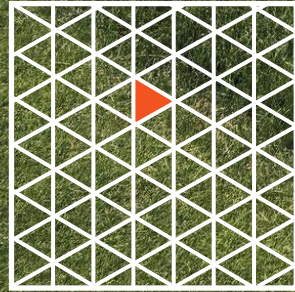
CHECKERBOARD



DIAMOND



TRIANGLE

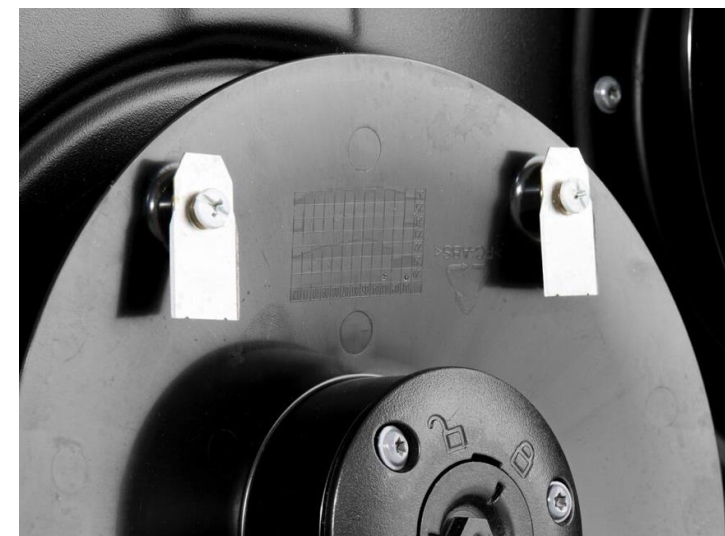
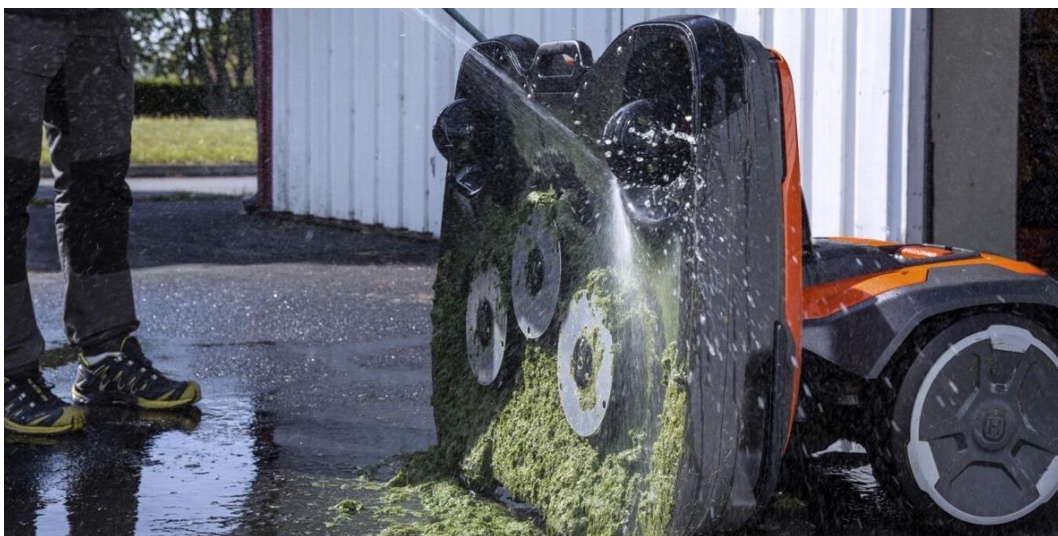


Select the mowing pattern that suits you best



# Easy maintenance

- Easy to change blades (with release of discs on CEORA)
- Simple cleaning with brush, compressed air or water (CEORA)
- Cutting deck with service position (CEORA)
- Motorized active wheel brushes prevent grass build-up





# Designed to protect... and be protected

- Safety features
- LED warning lights
- Theft protection





# A win for players and greenkeepers alike

- Perfect playing conditions
- More time for detail work
- Reduced costs
- Less disturbance
- Reduced environmental impact
- Dedicated expert support – global leaders in robotic mowing since 1995

“Everyone is fully convinced – from the greenkeeper, who has the most expertise, to the management and the guests who all give positive feedback.”

LARS LAMMICH  
Managing Director, GolfRange,  
Munich-Brunnthal, Germany





# CEORA™ HyperCare

- Pre-installation visit
- On-site installation
- Follow-up visits during the first month





Husqvarna®

Thank you!