

**VITIROVER**

Sustainable fleets of robots,  
a disruptive solution of vegetation maintenance

Vitirover is  
the first  
autonomous  
industrial  
mower-robot  
for industry  
and agriculture



Its main features:

- Autonomous
- Solar energy
- GNSS
- IoT and IA



# Vitirover' markets



**RAILWAYS**



**HIGHT VOLTAGE TRANSFORMERS**



**ORCHARDS**



**AIRPORTS**



**HIGHWAYS**



**VINEYARDS**




**PHOTOVOLTAÏC FARM**



# Low energy consumption by design

Vitrover's low-consumption technology, a high-level barrier to entry has now been crossed.

**Sustainable performances of the robot are outstanding**

  
100%  
autonomy

Solar panel  
Liion battery

  
In the GNSS  
limits of the plot

GNSS receiver  
GPS, GALILEO, GLONASS,  
SBAS, BEIDU

  
100%  
coverage

Intelligent circulation in the plot  
(IoT - AI)  
Ability to get out of all terrain traps

  
Operates as  
managed fleets

Connected object  
Remote control  
Predictive maintenance

  
Very low  
consumption

1 W / Kg

	Vitrover	Lawn mower	Tractor and rotary cutter	Other robot
Energy	Solar	Gasoline	Diesel fuel	Electric (*)
gCO2 eq / KWh depending on technology	32	683	778	66
Power weight ratio (w/kg)	1	62,8	70	16
KWh consumed per ha	4,5	9,42	15,7	28
gCO2 eq / KWh wasted	144	6 434	12 215	1 848
Cost (K€)	4	7	60	25

(\*) rechargeable battery

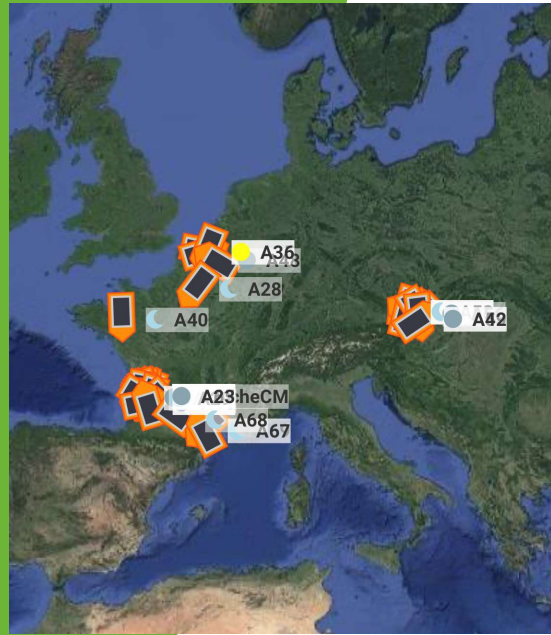


We do not sell robots

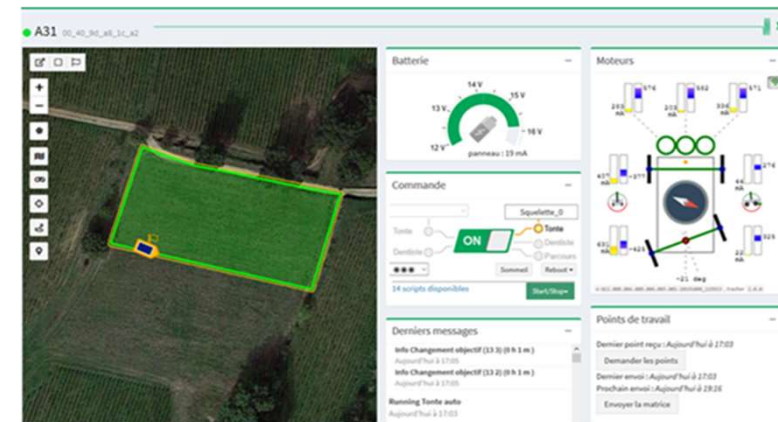
## WE SELL MAINTAINED HECTARES

The shepherd,  
in charge of a herd of robots,  
supervises the work  
remotely from a computer  
and intervenes if necessary.

With a single click, the shepherd takes control of a robot and can perform remote maintenance if necessary.



Robot management dashboard in VINEYARDS



# Competitive landscape 1 : Glyphosate alternatives

**Vitrover's approach is challenged by other glyphosate alternatives.**

**Today's market hasn't validated any of those initiatives.**

Weeding technique	Market	Country	Strengths	Weaknesses
Revegetation (Vegetalisation)	Tested by SNCF	France	simple	Need to be maintained
Alternative herbicide	Bayer	Germany	Monsanto power	Unknown side effects
Geotextile laying	Diverse	Various	prevents vegetation	Limited effectiveness, cost
Thermal weeding	Diverse	Various	efficiency	Carbon footprint, cost
Electrical weeding	Diverse	UK	Precision	Carbon footprint, cost



Revegetation



Alternative herbicide



Geotextile laying



Thermal weeding



Electrical weeding

# Competitive landscape 2 : Robots

## Trend 1- Automatisisation of existing processes.

Naïo, Vitibot, Sitia, propose to hitch traditional vineyards tools (plow) on an electric, potentially autonomous\*, straddle tractor



At the same time, the tractor manufacturers are working on potentially autonomous\* tractors



Advantages	Disadvantages	Situation
Easy to understand	Expensive	Multiple offers
Autonomous work	*No authorization for autonomy (lethal risk)	
	Heavy, compact soils, gullies	
	Hurt, cut vines	
	One robot, one man	

## Trend 2 – Transformation of processes



**EcoRobotix**

Solar-powered selective weed control robot



**FENDT (Xaver)**

Fleets of electric robotic seed drills



**VITIROVER**

Fleets of solar-powered robot weeders

Advantages	Disadvantages	Situation
Low cost solutions	Difficult to understand	Few offers
Cleaner (CSR)	Long to develop	
Strong barriers to entry		
Small machines do not tamp		
Low industrial cost price		
No lethal risk		
Authorized autonomy		
Until 50 robots, one man		



TODAY

Connected object,  
intelligent circulation  
in the plot (GPS)

FUTURE  
BEYOND V1  
IS ALL  
ABOUT  
**DATA**

TOMORROW

Data  
collection  
and analysis

## PROTECT THE ENVIRONMENT

- No use of fossil energy
- Creation of beautiful eco systems with greenery, insects and earthworms.
- **All agricultural or industrial plot maintained with VITIROVER becomes meadow and then carbon sinks that fix CO<sup>2</sup>.**

Vitirover's foundation is built on values\*, which guide our actions and contribute to the CSR transformation of our clients.

## SOCIALLY RESPONSIBLE

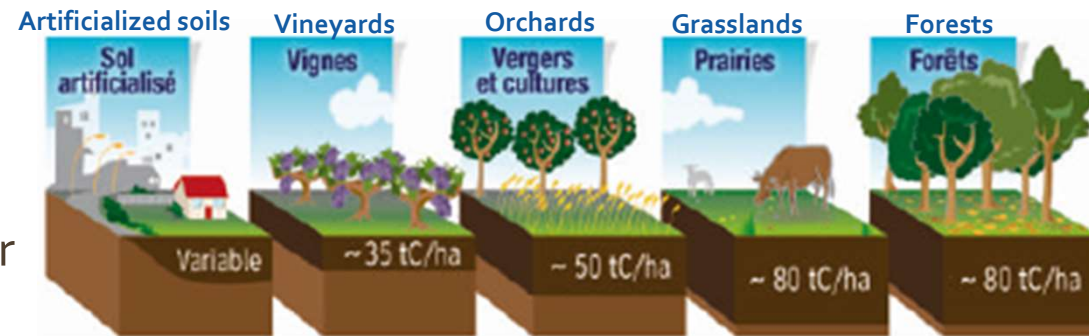
- We make disappear strenuous jobs
- **Our external shepherds are always entrepreneurs, happy to create their company based on our business model.**

\*Technology to do business by doing good

# Vitrover, carbon-positive robots

## Grassed vines are carbon sinks that fix CO<sup>2</sup> :

- Through the natural process of photosynthesis, grass uses carbon dioxide from the air (CO<sub>2</sub>), solar energy and water to grow.
- The carbon accumulates in plant tissue and then in the soil as organic matter.
- This is why the grassy soil in vineyards for example, is said to store carbon. In our climates, on average 35 tons of carbon per hectare and per year (35 tC / ha / year).
- On the other hand, if they are plowed, the stored carbon is re-emitted. It is important to maintain permanent grass cover



The storage capacity of a soil depends on the role assigned to it, the more the soil is "artificialized" (chemistry, plowing), the more its storage capacity is reduced.

All artificialized soil (railways, highways, electrical substations,...) are re-naturalized with Vitrover, becoming grassland and carbon sinks, they will fix carbon again!

# A Momentum for non-chemical weed control solutions

## France bans dozens of glyphosate weedkillers



Issued on: 09/12/2019 - 20:22 Modified: 09/12/2019 - 20:22

## Bayer Settles Glyphosate Cancer Lawsuits for \$10.9 Billion

Posted on Jun 24 2020 - 9:04pm by Sustainable Pulse

## Glyphosate Herbicides Now Banned or Restricted in 17 Countries Worldwide – Sustainable Pulse Research

Posted on May 28 2019 - 4:00pm by Sustainable Pulse

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World

## Germany to ban use of glyphosate from end of 2023: Sources

**Canadian Lawyers Launch \$500M Class-Action Lawsuit against Bayer / Monsanto**  
*Posted on Nov 22 2019*

SPECIAL REPORT

## Austria becomes first EU country to ban weedkiller glyphosate



Issued on: 02/07/2019 - 17:26 Modified: 02/07/2019 - 18:16

NEWS · 24 JANUARY 2019

**French court bans sale of controversial weedkiller**  
*Ruling prohibits sale of a glyphosate product to professionals, citing arguments that chemical is potentially carcinogenic.*

## NEWS

15 April 2019

Vietnam bans glyphosate

MARCH 28, 2019

Glyphosate under fire from San [Francisco](#) to Sri Lanka



ENVIRONMENT AUGUST 22, 2019 / 8:58 PM / 11 DAYS AGO

**French mayors ban glyphosate weedkiller, defying government**

**Germany + 13 Other Countries Say No to Glyphosate: What About the U.S.?**



April 26, 2018

Organic Consumers Association

[Environment & Climate](#), [Health Issues](#)

# Integrated into a dynamic and powerful ecosystem

Our Clusters	Innovation	Industrialisation	Partners	Clients	Ongoing POC

# Numerous awards received



Laureat 2018  
Among 450 candidats



Laureat 2019  
Collaboration  
Large Group / Startup



Laureat 2018  
Contest Nouvelle Aquitaine



Laureat 2020



Lauréat Contest  
My Positive Impact



FNSEA 2020



Laureat 2019 (Austria & Germany)  
Among 250 candidats



Laureat SABOR 1 & 2 Projects



Laureat Pierre Dellenbach Trophee



Lauréat 2020



Laureat 2020



Laureat 2020



# GOING FORWARD TOGETHER

Arnaud de la Fouchardière, CEO

☎ +336 0761 2336

✉ [arnaud.delafouchardiere@vitirover.com](mailto:arnaud.delafouchardiere@vitirover.com)

🌐 [www.vitirover.com](http://www.vitirover.com)