



MORFO

The most complete
reforestation solution,
to restore ecosystems at scale



Learn why people reforest with MORFO ... in 5 minutes

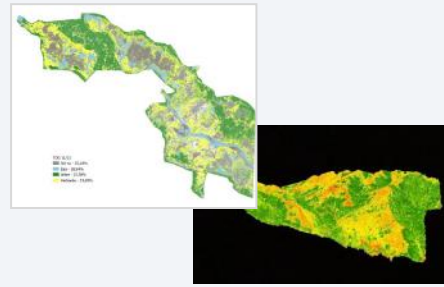


[You can also
watch the video](#)



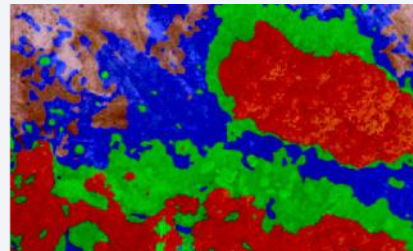
MORFO is a complete solution :

- 1°) Analysis
- 2°) Selection
- 3°) Planting
- 4°) Tracking



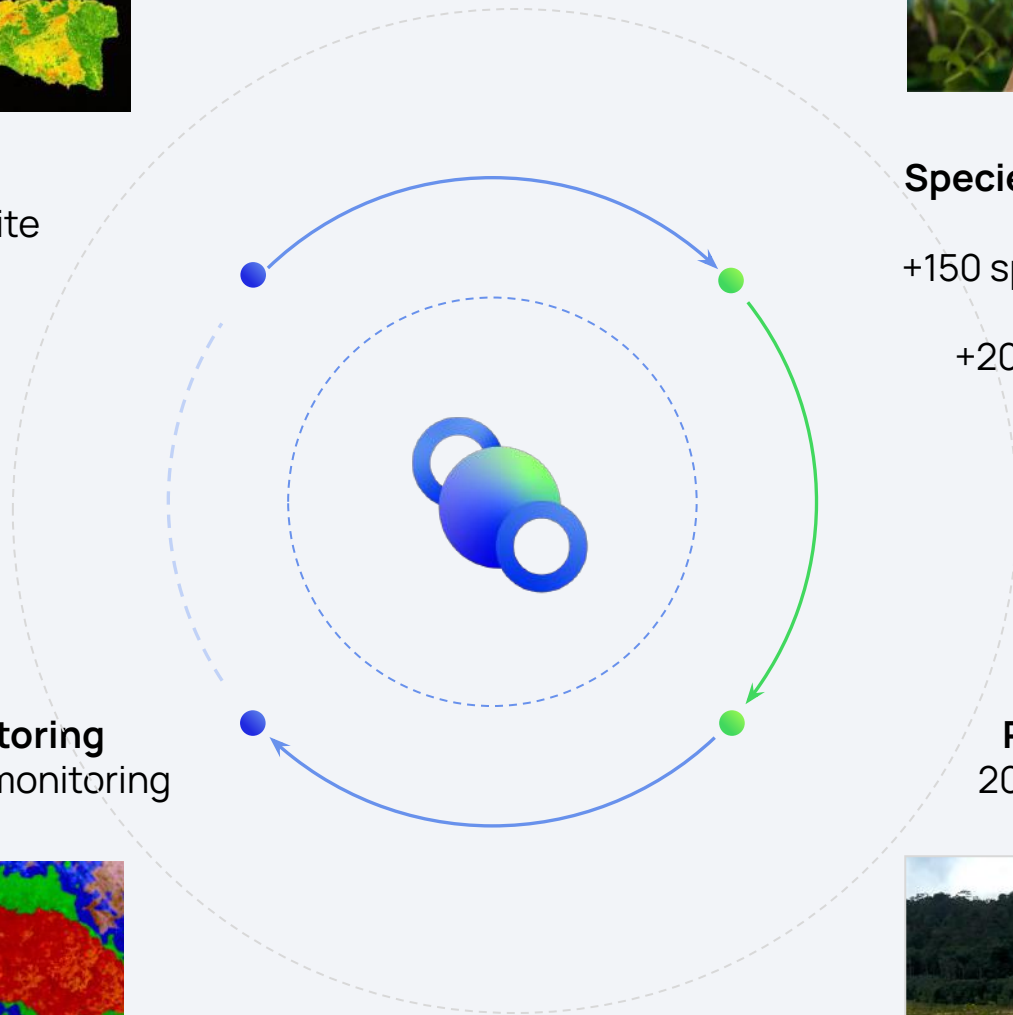
1
Area analysis
By drones, satellite images and field studies.

4
Ecological monitoring
Provision of our monitoring platform



2
Species selection and encapsulation
+150 species studied in our laboratories
+20 species planted on average

3
Planting by drone
20-50 hectares/day
180 caps/minute



Our solution tackles several problems at once...



Forests Biodiversity

Today, **90% of reforestation projects are based on low-biodiversity seedlings** and 45% of projects are single-species.* In comparison, we plant **up to 20 species per project**.

Why forest biodiversity is important :

- > impact on local communities
- > carbon capture opportunities
- > reduce erosion rate
- > reduce risks of fire



Reforestation at scale

On the planet, **900M hectares could be restored** without impacting human activity. As a faster planting solution, MORFO is complementary to traditional planting.

Why we reforest at scale :

- > increase carbon capture opportunities



Survival rates

In some regions, **seeds survival rates are very low, around 5%**. Our agronomy team works in partnership with recognized laboratories on **a catalog of 150 local species** increasing the success of native ecosystems revegetation.

We work with an active scientific network



MORFO continuously carries out experiments and analyzes in different laboratories. **This R&D work is an extremely important aspect of our business**, as it allows us to expand our agronomic and botanical knowledge and therefore continuously improve our solution. During these experiments, **we test the germination and growth of species in real reconstituted conditions** before planting on selected zones. In doing so, we understand the species and optimize their growth. Thanks to our partnerships, we benefit from **more than 10 years of research in microbiology**.



"The partnership with Morfo will allow the selection and monitoring of species with an aptitude for direct seeding, reducing the costs of restoration on a larger scale with the support of drones"



Fatima Piña-Rodrigues
Professor & Researcher
at the UFSCar



Robin Duponnois
Research Director at IRD

**MORFO mixes the
best of Agritech,
machine learning &
computer vision**



Species selection is at the core of our R&D

Our catalog contains **more than 150 species**, some of which have been studied for 10 years, and some still under study. In order for a species to be selected for the MORFO method, it must meet at least 13 criteria. Some of these criteria are mandatory, while others are optional. They are taken into account according to the characteristics of the project (scope, speed of growth, heliophily, nodulation, carbon storage capacity, phytoextraction, decompression...).



EXAMPLES OF CRITERIA



Be local and non-invasive species



Offer strong resistance to water stress and ability to develop on a poor ground



Ensuring genetic diversity and be strategic to restore soils (decompaction, cover, fertilizer, organic matter)



Be strategic to restore forest cover and accelerate plant succession



Rapid growth

4

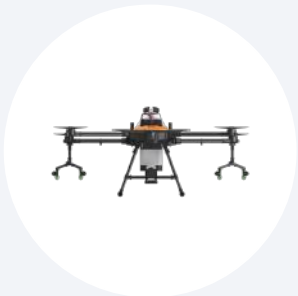
biomes have already been studied by our researchers

We then use drones to plant



IMAGERY DRONES

Complements satellite analyzes and field analyzes



PLANTING DRONES

Combined with release systems developed with our technical partners

In our reforestation projects, drones are regularly used. **We actually use two types of drones :**

- **Imagery drones** : Before planting, our teams analyze the biodiversity and characteristics of the area to be reforested. These analyzes are carried out by field surveys and laboratory analyzes to know the soil, by satellite imagery, but also thanks to a first drone model, used for imagery.
- **Planting drones** : We also use drones during the planting phase. We use agricultural drones capable of lifting fairly large loads and dispersing exclusive capsules that we have developed with public laboratories and scientists. These drones are large drones, about 1.50 meters in diameter. With our partners, we have developed drop systems adapted to our capsules.

DRONES MISSIONS AND ADVANTAGES



Quick and efficient intervention



Access to the most remote, inaccessible and dangerous areas



Analyzes and follows precisely all our restoration projects



Reduced security risks during restore operations



Light and flexible logistics, adapted to industry constraints

20 to 50

hectares planted by a drone per day (180 caps/minute)

Capsules (= seedballs) are our secret sauce



ADVANTAGES :



Total seed protection
in its early stages of development



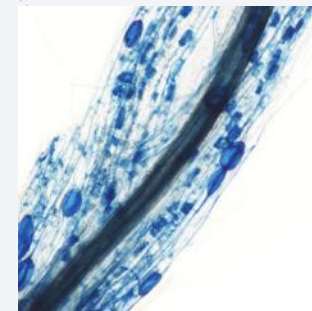
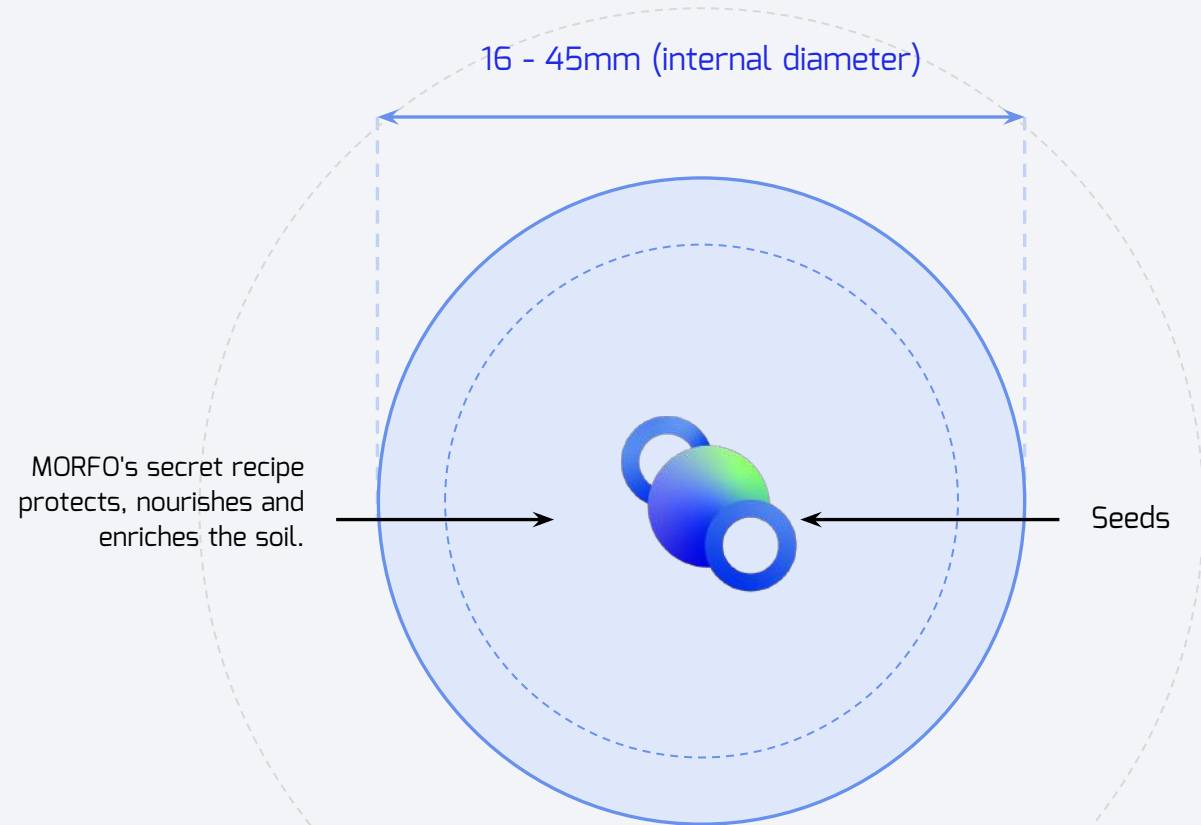
Acceleration of biological symbioses
with 2 effects: soil re-enrichment and
plant growth increased by 15 to 30%



The growth of your forest
in a real ecosystem, allowing for a
more resilient plan and consistent
growth



Efficient dispersion on all types of
soils and slopes, to maximize planting



To monitor the growth, you'll access a dashboard

Throughout the development of the project, your team has access to an interactive dashboard. This dashboard gives you access to:

- **Pre-analysis data:** soil distribution, erosion, soil analyses, etc.
- **Reforestation monitoring:** forest cover, biomass growth, biodiversity index, etc.
- **Carbon monitoring:** carbon stock, carbon credits generated, etc.

All of this data can be shared with the various stakeholders in your reforestation project: institutional partners, corporate team, other service providers, etc.



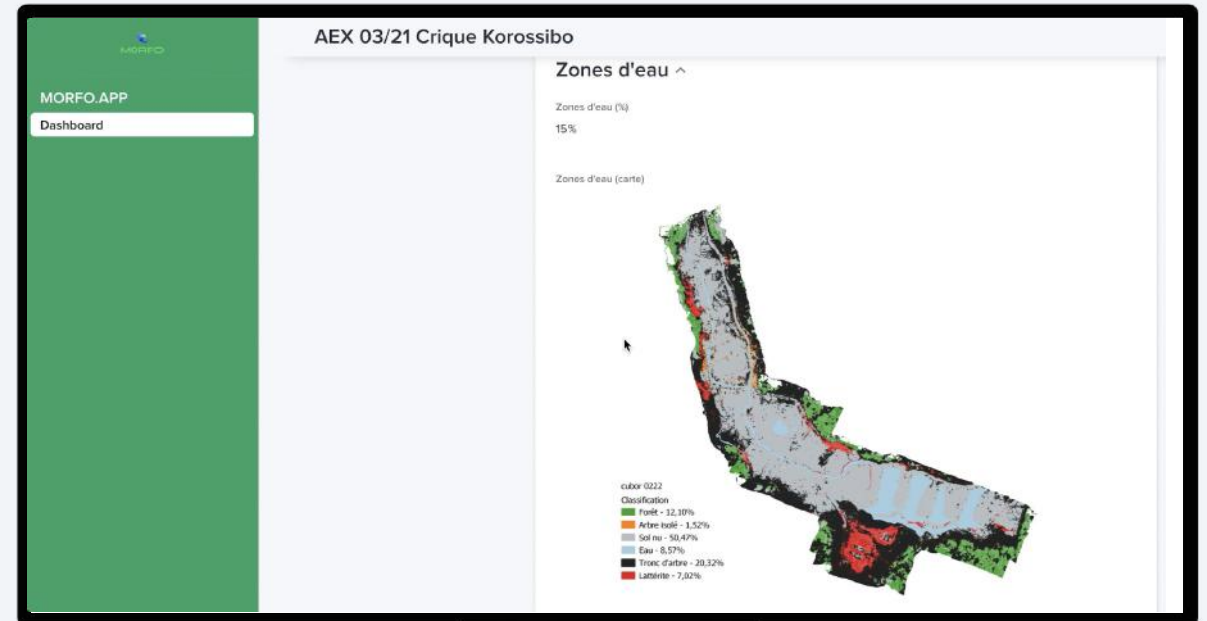
Personalized online dashboard with up-to-date data



Accessible maps and graphics for communication



Drone & satellite data analyzed by our algorithms
Success rate of plantations, distribution and evolution of vegetation, carbon stock, soil segmentation, ...





**FINALLY,
EASY MONITORING!**

All the files (analysis, planting, monitoring, etc.) on the dashboard are **accessible and downloadable**, to facilitate your reports and sharing with the authorities.

PLANTING REPORT



- topography
- soil distribution
- erosion
- soil analyzes
- analyzes of reforestation areas

PRE-ANALYSIS DATA



- pre-planting analysis
- planting strategy
- detail of species

REFORESTATION MONITORING



- forest cover
- biomass growth
- biodiversity index
- vegetation indices
- Maps: natural, vegetation, humidity, infrared...

FIELD PICTURES



- by drone
- by humans

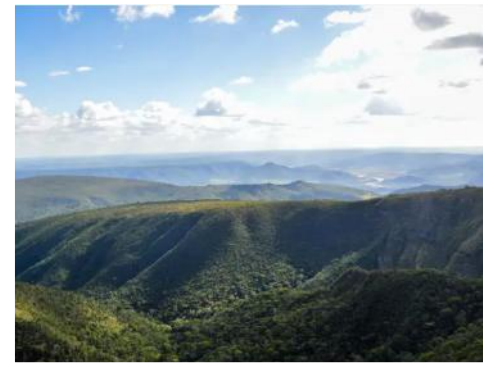
Appendix





SEEDBALLS : ENSURING HIGH SURVIVAL RATES IN A DRONE REFORESTATION PROJECT

[Read online](#)



4 REASONS TO CONDUCT A REFORESTATION PROJECT WITH OUR SOLUTION

[Read online](#)



R&D : WHY AND HOW WE WORK WITH SPECIALIZED LABORATORIES

[Read online](#)

**Learn
more on
our
website**



WHY USE DRONES TO REFOREST?

[Read online](#)



SINGLE SPECIES REFORESTATION VS. BIODIVERSITY RESTORATION ?

[Read online](#)

Some team members



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