

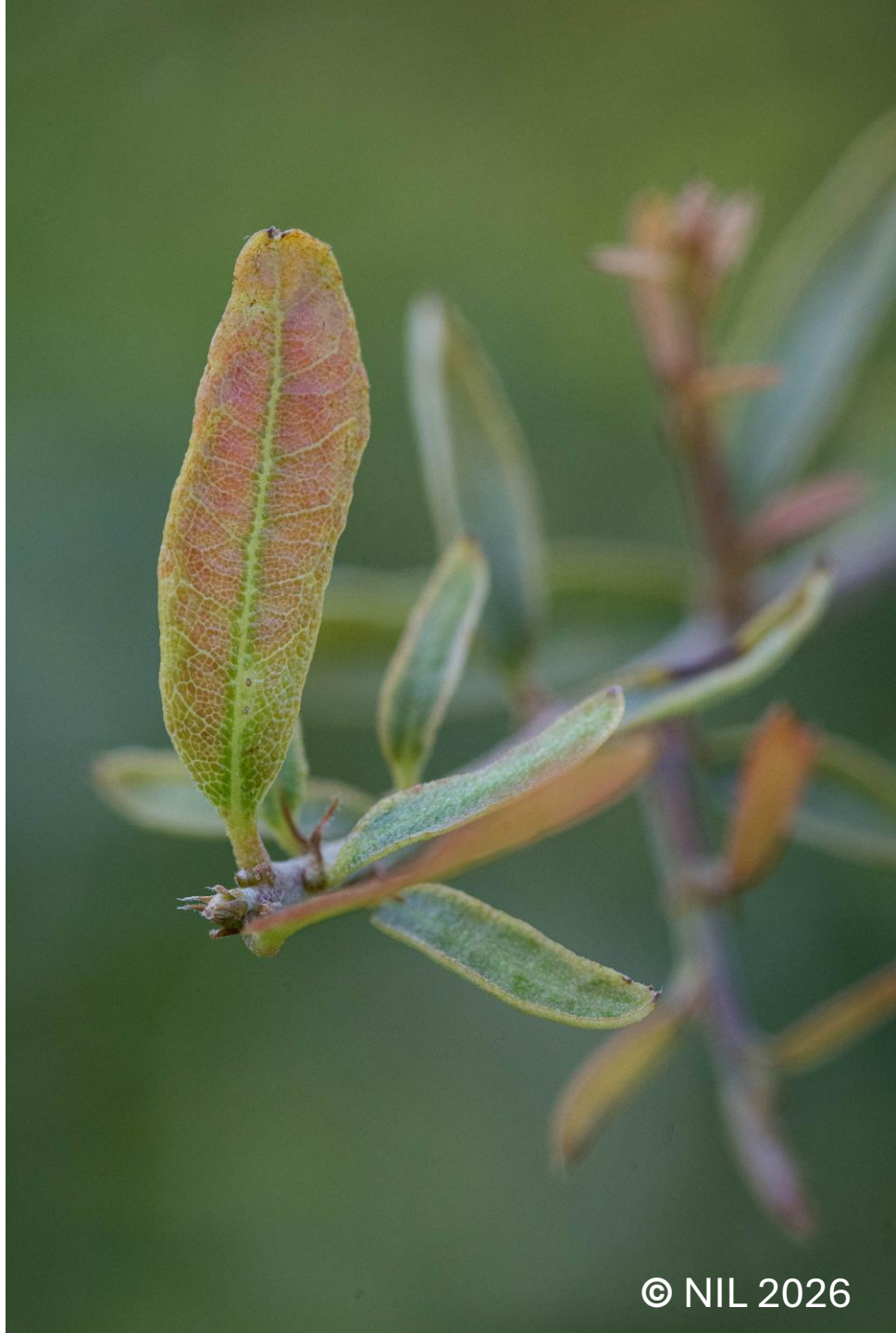
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Natural Interactive Lab – NIL FOUNDATION for a Sustainable Future

It arises from the need to develop **new scientific paradigms** to address environmental, climate and socioeconomic challenges on a global scale.

It promotes the study of the plant world to better understand the true mechanisms that govern the behaviour, development, growth and interactive capacity among plants, in order to expand knowledge about the ability to face and solve problems.

It creates relationships among **research**, **institutions**, **production sectors** and **communities** on strategic themes for sustainability.



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THE GLOBAL CHALLENGE

Why the world needs new paradigms

Climate change is impacting living conditions even more rapidly than expected.

By **2050**, the progressive deterioration of ecosystems worsens food insecurity and the deficit of energy and water resources for a world population of around 10 billion. Current agricultural and industrial systems are reaching their physical and ecological limits. For NIL Foundation, the answers to these challenges are found in nature, **we must thoroughly understand the world of plants**.

+56%

Increase in global food demand by 2050

+50%

Growth in global energy demand by 2050

−40%

Projected gap between demand and availability of freshwater by 2030

Sources: (Nature Food, 2021); (EIA, IEO 2021); (UN / World Economic Forum, 2023).

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THE VISION

A new alliance between humanity and nature

NIL Foundation promotes a future in which plants are **intelligent allies** for global sustainability, changing the perspective of the plant world as passive resources. The future depends on our ability to **cooperate** with **natural systems** in a virtuous way, placing ourselves in balance with them.

«A world in which plants become conscious allies of humanity.»



Science:
deep understanding of the life and mechanisms of plants



Innovation:
new solutions inspired by the plant world



Impact:
sustainable transformation of ecosystems

NIL Foundation promotes this silent revolution at various levels: *a revolution that begins in the leaves and roots and can transform the world.*

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ABOUT US

What is NIL FOUNDATION?

NIL Foundation is a participatory foundation that **promotes** and **develops advanced research** on the world of **plants** and their **interactive capacity**. The foundation develops synergies between scientific research, institutions, technological innovation and production sectors, with a clear mission: to create virtuous balances with nature in order to identify strategic levers for global sustainability.

Our vision is based on the concept of **«Natural Interactive»** — the ability of plant systems to communicate, optimize energy and adapt to different environmental contexts in order to create an **alliance** in which science and communities can understand and develop sustainable solutions.



Scientific community



Companies & Innovators



Public institutions and policy makers



Technology transfer actors

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SCIENTIFIC PLATFORM

How NIL Operates: An Integrated Scientific Platform

NIL Foundation acts as a **coordination hub** for research on the interactive capacity of plants, operating through an **integrated ecosystem of activities** that connect laboratories, universities, institutions and production sectors into a unique and synergic system.



SCIENTIFIC PLATFORM

How NIL Operates: An Integrated Scientific Platform

The system is structured into:

- ❑ **International scientific scouting:**
  - identifying the best global research.
- ❑ **Research funding:**
  - support for high-potential projects.
- ❑ **Academic partnerships:**
  - collaboration with universities and research centres.
- ❑ **Technology transfer:**
  - from scientific discovery and publication to real-world application.
- ❑ **Training programmes:**
  - development of specialized skills.
- ❑ **Innovation ecosystems:**
  - creation of networks among startups, companies and investors. (biodiversity and agritech)
- ❑ **Scientific outreach and events**
- ❑ **Policy development**

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STRATEGIC RESEARCH

NIL: First Research Programmes

Understanding plant processes to build the future

Nature is the result of millions of years of evolution. Plants, in particular, have developed extraordinary strategies to produce energy, adapt to change, communicate with their environment and sustain life on the planet.

The NIL Foundation starts from a simple conviction: **before imitating nature, we must understand it**.



STRATEGIC RESEARCH

NIL: First Research Programmes

The Foundation's research projects study the biological mechanisms that govern photosynthesis and the relationships among plants, with the aim of **transforming this knowledge into solutions** to address some of the great challenges of our time: climate change, food security, biodiversity protection and agricultural sustainability.

The three lines of research are closely connected and address three complementary aspects of the same natural process:

1. Understanding how to **protect it from environmental stress**

2. Understanding how to **make photosynthesis more efficient**

3. Discovering how **plants naturally communicate and defend themselves**, harnessing these mechanisms in agriculture

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THE HEART OF THE MISSION

1. Enhancing photosynthesis

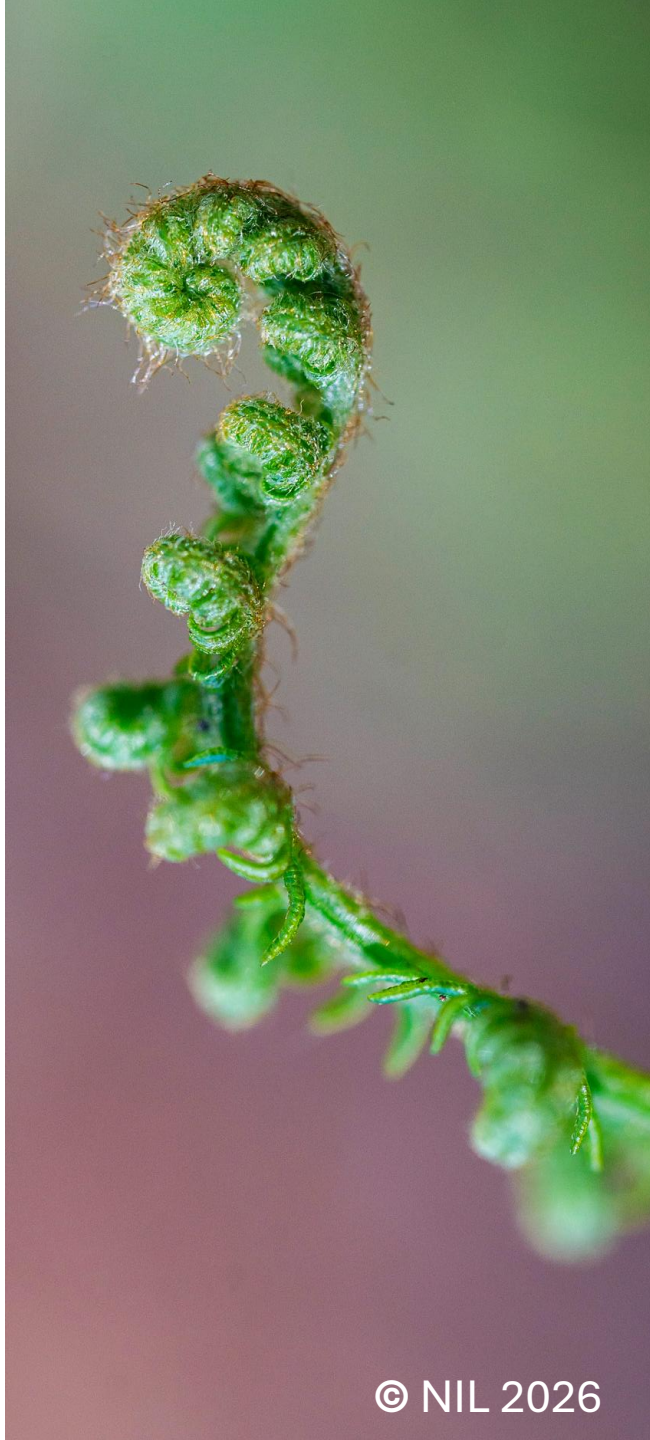
Understanding how plants transform light into life

Photosynthesis is the engine of life on Earth: it transforms the Sun's energy into biomass, absorbs carbon dioxide and makes food production possible.

Despite its extraordinary importance, it is an extremely complex process that has remained almost unchanged for billions of years. It is precisely this stability that makes it difficult to improve its efficiency.

The NIL Foundation project aims to understand **the entire functioning of photosynthesis**, studying how all its biological mechanisms interact — from light capture to resource use, all the way to plant growth.

The goal is not to modify a single step, but to **understand the system as a whole** in order to naturally increase plants' ability to produce biomass, absorb CO_2 and use water and nutrients more efficiently.



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THE HEART OF THE MISSION

2. Stabilizing photosynthesis

Understanding the mechanisms of plant resilience

Plants live every day with drought, heat, salinity, disease and other stress factors that can compromise photosynthesis and reduce productivity. Many species, however, possess sophisticated biological systems that allow them to adapt and keep living even in difficult conditions.

The NIL Foundation project studies precisely these **natural resilience mechanisms**, seeking to understand how plants manage to protect their photosynthetic apparatus and maintain their physiological balance.

Understanding these processes means being able to develop **innovative strategies** to make crops more resistant to climate change, preserve soil fertility and ensure more stable agricultural production — without forcing natural systems but reinforcing their intrinsic capacities.



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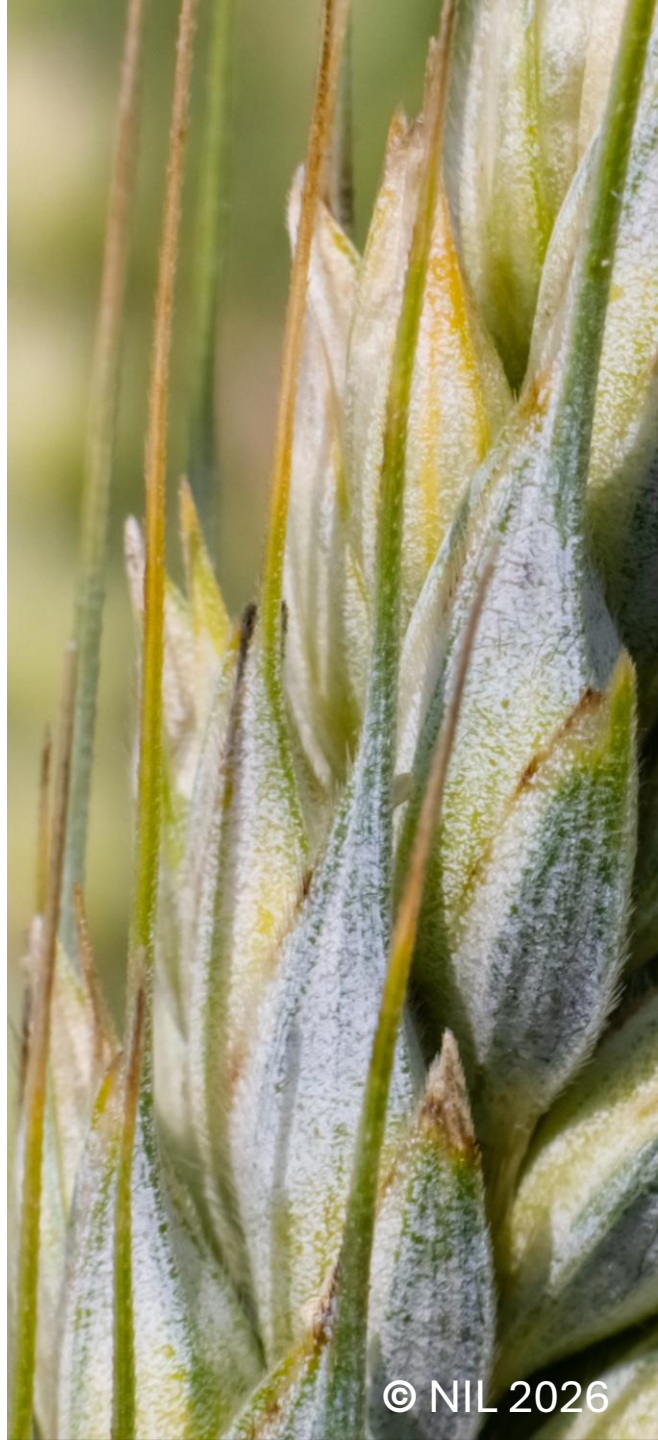
3. Harnessing plant signals

The language of plants: deciphering the signals that govern defence, cooperation and adaptation

Plants are not passive organisms. They produce molecules, perceive signals, and communicate with each other and with the other organisms in the ecosystem. Through volatile substances and natural metabolites they manage to attract pollinators, repel harmful insects, summon their natural antagonists and even warn nearby plants of incoming stress.

The NIL Foundation's research aims to understand this **invisible language**, studying the biochemical and molecular mechanisms that govern the communication and natural defences of plants.

The goal is to learn from nature in order to develop an agriculture capable of reducing the use of pesticides and fertilizers, harnessing the processes that plants have used spontaneously for millions of years to live, cooperate and adapt to their environment.



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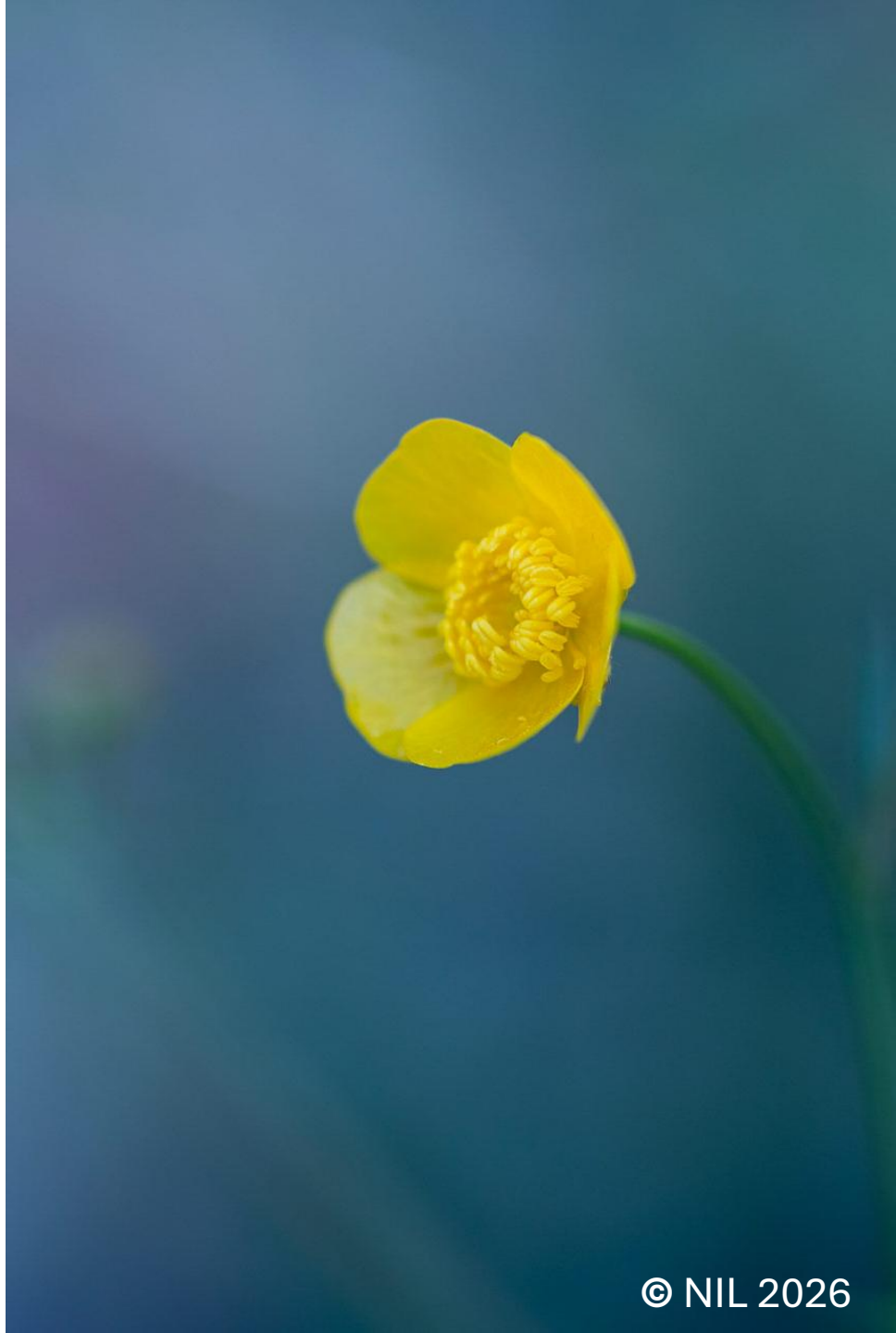
IMPACT MODEL

A systemic impact model

NIL integrates cutting-edge scientific research with practical implementation on the ground. The goal is to **generate measurable impact across five strategic dimensions**, creating a virtuous circle between scientific discovery and the real transformation of production systems.

- ❑ Food Security
- ❑ Carbon Reduction
- ❑ Sustainable Agriculture
- ❑ ESG Innovation
- ❑ Carbon Farming

«Research must generate transformation in the real world.»



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SCIENTIFIC PLATFORM

5 June 2026: Establishment of NIL First Actions and Programmes

- ❑ **In the process of being recognized as a Third Sector Entity (ETS) in the RUNTS;**
- ❑ **Research funding:**
  - conception and presentation of projects for urban greenery and health, and green plant walls on buildings.
- ❑ **Academic partnerships:**
  - signing of agreements with CNR, CREA and the University of Naples.
- ❑ **Training programmes:**
  - funding for 2 to 4 PhD research scholarships.
- ❑ **Scientific outreach and events:**
  - planning of 3 events (2026).
- ❑ **Policy development** with bodies and institutions.

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ECONOMIC SUSTAINABILITY

How is NIL funded?

NIL's economic sustainability — a hybrid and diversified model

New members

Contributions from new participants and supporters joining the Foundation

Public-private grants

EU, national and regional projects (Horizon Europe, LIFE, PNRR)

Donations

Contributions from individuals and companies, 5×1000, crowdfunding

Research valorization

Licenses, patents, scientific services, events and outreach

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