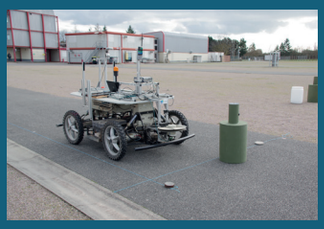
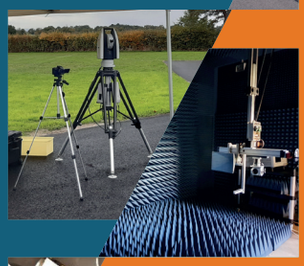
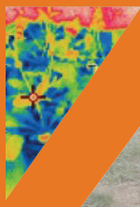
AgroTechnoPôle

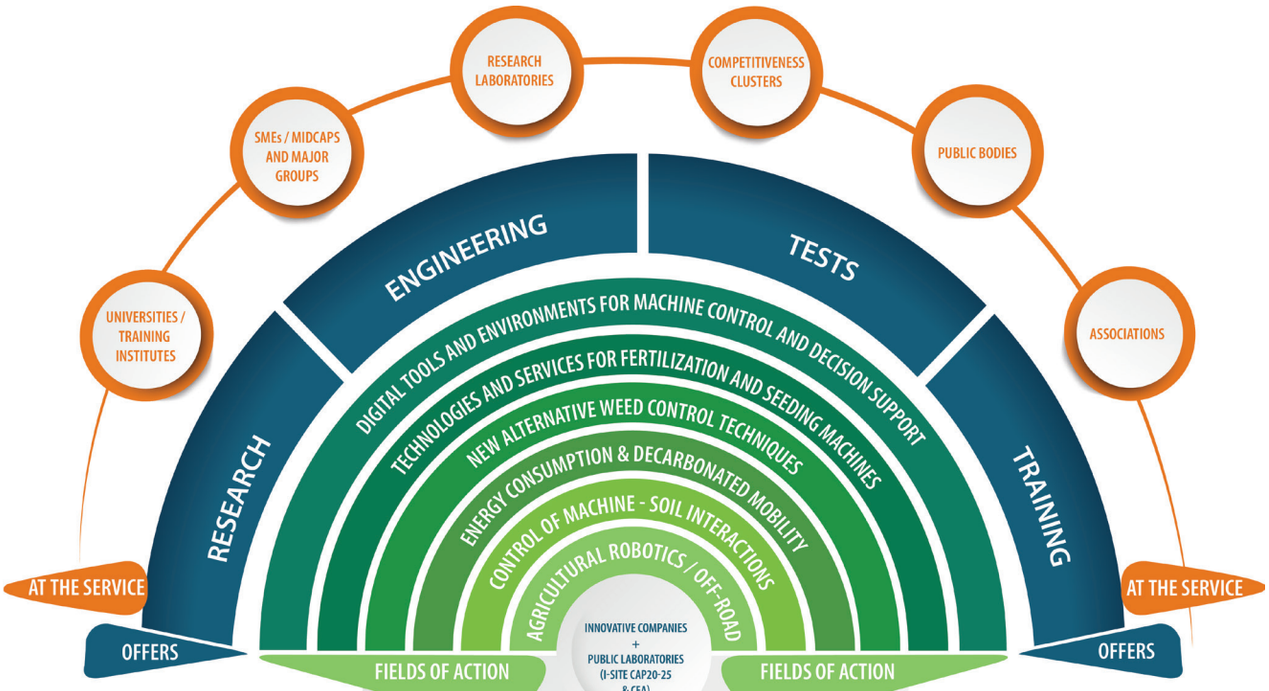






The AgroTechnoPôle is an open innovation platform leaded by INRAE for all stakeholders involved in agriculture to support them in the development of their technological and digital solutions.

An open platform



The AgroTechnoPôle is an open partnership platform **at the service of all actors** (manufacturers, suppliers, integrators, software publishers, technical institutes, technology clusters, research laboratories, etc.).

The AgroTechnoPôle is a platform for accelerating both incremental innovations (improvements of existing machines) and breakthrough innovations (new machines, processes, etc.) in order to answer to agriculture challenges.

The AgroTechnoPôle proposes a complete **offer** in terms of **RESEARCH, ENGINEERING, TESTING** and **TRAINING** based on its ability to mobilize multiple skills from its Academic partners (CEA, CEREMA, UCA, VetAgroSup, LP Gustave-Eiffel, CNRS, AgroParisTech, INRAE) AND / OR its Network of specialized Innovative Companies (Mechatronics / Robotics, Terra-mechanics, AI, IoT, Modeling / Simulation, etc.)

The fields of competences

A large range of scientific and technological competences can be mobilized from its partners:

Academics:

- The AgroTechnoPôle relies on the scientific skills of Clermont-Ferrand laboratories in the field of engineering sciences, information sciences, cognitive sciences, etc. belonging to the University of Clermont-Auvergne, the CEREMA, VetAgro Sup and INRAE, all of them involving in the CAP20-25 I-Site.
- The AgroTechnoPôle also mobilizes the skills of all the CEA Tech institutes (robotics, energy, microelectronics) as well as INRAE (agronomy, biology, economics, ...).

Network of Innovative Companies: the strength of the AgroTechnoPôle is also its ability to call upon engineering companies full devoted in applied solution developments inside innovative projects.

Associated Partnership Laboratory "SHERPA-Engineering / TSCF-INRAE Research Unit" dedicated to the development of tools and methods for agricultural robotics.

The fields of applications

The AgroTechnoPôle is focused on the development of new tools / machines / services for the agro-ecological transition that are, for example, more efficient in terms of accuracy and speed of task executions, more energy efficient and environmentally friendly (reduction of greenhouse gases, soil protection, etc.).

The targeted fields of application mainly concern technologies for crop production, including machines (robotized or not) for soil tilling, sowing, fertilization, alternative weeding techniques, harvesting, but also those favouring new agricultural practices.

An unique positioning

The AgroTechnoPôle claims a differentiating and original position in the production value chain of new technologies for agriculture with the development of solutions and the qualification of performances **«from the Bench to the Field» under controlled and therefore reproducible conditions** thanks to its facilities (infrastructures and equipment's).

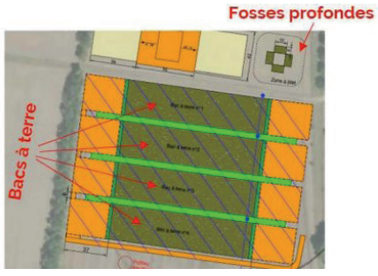
The existing means

Existing original means of investigations come from all the AgroTechnoPôle partners, for example: anechoic chambers for tests in controlled electromagnetic fields (Institut-Pascal, UR TSCF), fuel cell test bench (CEA), fog-rain chamber (CEREMA), test benches for the characterization of mineral and organic fertilizers, experimental fields, zones with different slope profiles, reference positioning tools,...

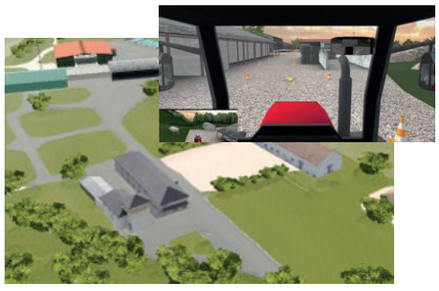
The new infrastructures

On the privileged site of the AgroTechnoPôle at INRAE Montoldre (03), several new infrastructures are under construction:

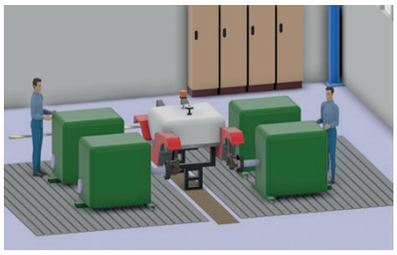
Tracks and evolution areas for the qualification of machines / robots and Off-Road vehicles.



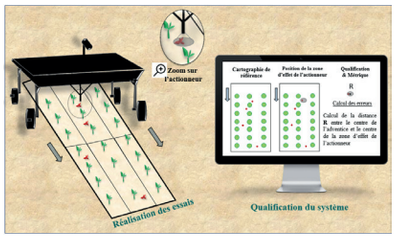
Large soil areas (clay ratio content 7%, 10%, 25%, 70%) for pneumatic tests, vehicles, seeders machines...



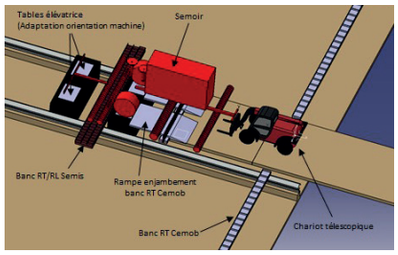
Digital Twins environment for the development of robotic applications.



Energy bench and decarbonated mobility for small and medium power vehicles.



Bench for characterization (Perception / Decision / Action) of alternative weed control systems.



Bench of characterization of sowing machines.

The Referring Companies

First companies that bring as soon as 2022 their trust and financial contributions to the definition and construction of the new infrastuctures.

BUREL PRODUCTION · KUHN · MICHELIN · SHERPA engineering

The Test Operators

Partners of the platform, starting in 2022, who will be in charge of test activities under the «AgroTechnoPôle» Label, using their own facilities OR facilities provided by the AgroTechnoPôle.

SHERPA engineering · Cerema CLIMAT & TERRITOIRES DE DEMAIN · INRAE

AgroTechnoPôle

The AgroTechnoPôle is already operational and carries out projects at the request of external partners to solve scientific and technological barriers under various partnership status (direct agreements, collaborative projects).

First Professional Collectives that support the promotion of the platform through their own networks

AXEMA · RobAgri · CIMES Creating Integrated MEchanical Systems · VEGEPOLYS VALLEY CULTIVONS L'AUDACE VÉGÉTALE

Synergy and coordination

CAP 20-25 I-SITE CLERMONT Clermont Auvergne Project · FRANCE 2030

The AgroTechnoPôle is involved in the CAP 20-25 i-Site, led by the Clermont-Auvergne University (UCA). The Platform constitutes a privileged bridge between two of its four International Research Centers: i/ «Sustainable Agroecosystems in a Context of Global Change» and ii/ «Innovative Systems and Services for Transport and Production (ITPS)».

INSTITUT CARNOT Plant2Pro

The INRAE TSCF research unit, and therefore AgroTechnoPôle, joined in 2020 the Plant2Pro Carnot Institute dedicated to Public-Private Partnerships in the plant production sector. The AgroTechnoPôle reinforces the research and partnership offers of Plant2Pro on its theme «Cropping Systems and Precision Agriculture».

Partners involved in the valorization / dissemination

INRAE › transfert · Clermont Auvergne Innovation

Public funders in the platform construction support

Avec le soutien de

La Région Auvergne-Rhône-Alpes · RÉPUBLIQUE FRANÇAISE Liberté Égalité Fraternité Fonds national d'aménagement et de développement du territoire · ALLIER BOURBONNAIS Le Département

An international dimension

agRO BO food

AgroTechnoPôle is member of **AgROBOfood**, European Digital Innovation Hubs (DIH) and Competence Centers (CC) to help companies to introduce and promote new robotics technologies in the agricultural and food sectors.

METRICS

Within the framework of the METRICS European project, the AgroTechnoPôle - UR TSCF hosted on the site of Montoldre in Allier (2021 and 2022), the ACRE Challenge (Agrifood Competition for Robot Evaluation) allowing to evaluate different functions of intelligent tools (robotized or not) for the intra-row weeding of crops. https://metricsproject.eu/

OECD · ISO International Organization for Standardization

Active involvement (2022-2023) in the ISO and OECD Working Groups for the development of tests to qualify safety performances of agricultural robots following the ARPA (Agricultural Robots Performances Assessment) project (2018-2019) supported by AgROBOfood.

TIRREX

The AgroTechnoPôle has been identified as the experimental center for the "Agricultural Robotics / Off-road" sub-theme of the TIRREX Platform - Technological Infrastructure for Robotics Research of Excellence - carried by the CNRS and its partners as a structuring facility (EquipEx+) supported by the National State for the development of robotics (2021-2027).

TEF AGRIFOOD

AgroTechnoPole-UR TSCF is a partner of the **AgriFoodTEF** European project **(2023-2027)** for the deployment of a European test network toward manufacturers in order to validate their AI-based developments (French national coordination provided by the LNE).

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Join us on

www.agrotechnopole.fr

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