How developping your biosolutions for seed protection?

Research projects or evaluation services

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GEVES's commitment

GEVES supports solution developers and stakeholders across the seed sector through R&D projects and seed treatment evaluation services, helping to protect crops both today and in the future.

GEVES has already been involved in several projects, including:

- SeedBioProtect, which focuses on assessing the impact of seed traits, seed production origin, and treatment application methods on treatment efficacy.
- CapProtéines+, which evaluates seed treatment solutions against pea downy mildew, with the objective of strengthening and securing the plant protein value chain.
- Sucseed, which aims to phase out the use of pesticides on seeds and develop alternative protection solutions.
- Biostim, focusing on the evaluation and development of biostimulant solutions to enhance seed quality, germination, seedling vigor, and crop tolerance to environmental stresses, with a particular focus on root system development in cereal crops.

Through its involvement in the Association for Biocontrol and Biostimulation in Agroecology (ABBA) and its leadership of Work Package 1 within the SUPRASEED programme, GEVES remains fully committed to supporting the seed sector in identifying and developing the biosolutions of the future.

Evaluation of seed treatments for seed and seedling health

(1) Description of the evaluation service

As part of the evaluation of crop protection products, GEVES supports you in:

- Assessing the efficacy of your treatment solutions;
- Determining dose-response relationships;
- Evaluating combinations of treatment solutions;
- Assessing the phytotoxicity of solutions on seedlings;
- Monitoring the efficacy of your solutions over time, notably through dedicated monitoring schemes;
- Evaluating the spore viability following a treatment.

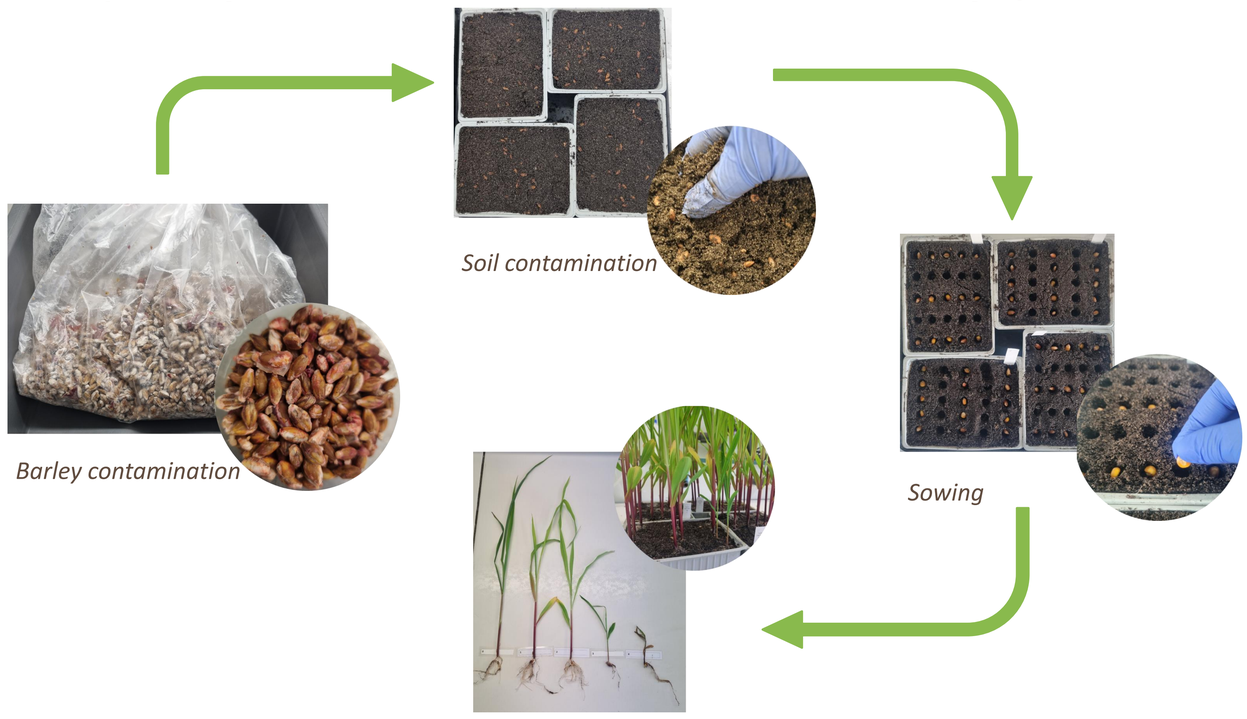
According to your needs, trials are specifically designed and conducted in vitro or in planta.

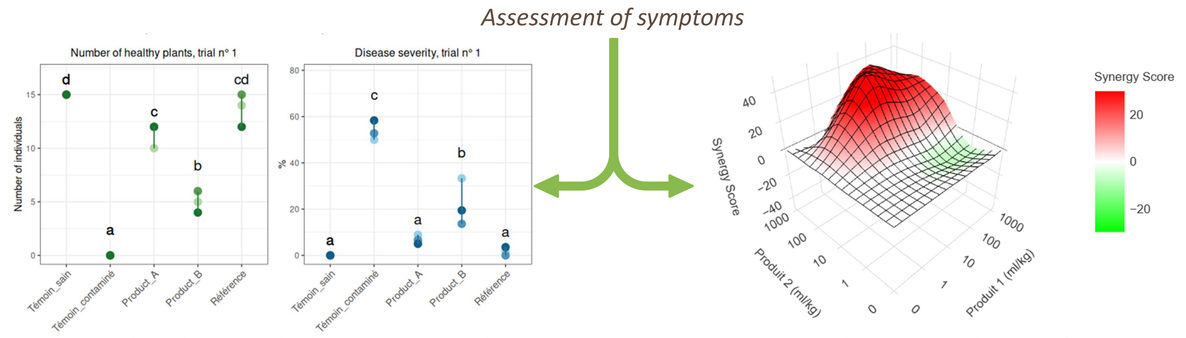
Below are some examples of pathosystems for which we have established expertise. However, please do not hesitate to contact us if the pathosystem you are interested in is not listed.

Few examples of available pathosystems

Host plant	Pathogens
Lettuce	*Fusarium oxysporum* race 1 et 4.
Maize	*Fusarium* sp. ; *Pythium* sp. ; *Rhizoctonia solani*.
Pea	*Peronospora* sp.
Rapeseed	*Plasmodiophora brassicae ; Phoma lingam ; Alternaria brassicicola ; Rhizoctonia solani.*
Spinach	*Pythium* sp.
Sunflower	*Botrytis cinerea ; Plasmopara halstedii ; Fusarium* sp.
Tomato	*Meloidogyne incognita*.
Wheat	*Microdochium nivale ; Tilletia caries ; Puccinia striiformis ; Puccinia triticina*.

2) Example of a treatment evaluation : *Fusarium sp*. / maize





Statistical analyses applied to assessment data

Synergy analyses on product combinations

Evaluation of seed treatments for the biostimulation of seeds and seedlings

(1) Description of the evaluation service

As part of the evaluation of biostimulant seed treatments, GEVES supports you in:

- Assessing the effects of biostimulant solutions on seed germination and seedling establishment;
- Optimizing application rates and treatment strategies;
- Characterizing root system development;
- Assessing plant tolerance to abiotic stresses;
- Monitoring treatment performance under different environmental conditions.
- Evaluating seedling vigor and early plant growth;
- Measuring biomass accumulation;

According to your needs, trials are specifically designed and conducted under laboratory or growth chamber conditions, using a range of dedicated phenotyping tools to evaluate the performance of biostimulant solutions in terms of germination, emergence, root architecture, biomass accumulation, growth, and stress tolerance.

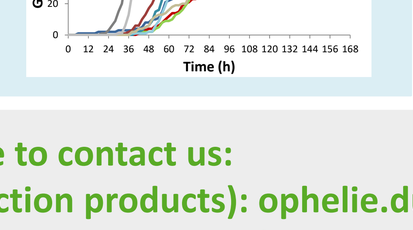
The following are a few examples of measurable parameters:

Assessment Area	Parameter	Measured Trait
Seed Germination	MGT ± SD (h)	Germination speed and variability
	T10, T50, T90 (h)	Time to reach 10%, 50% and 90% germination
	Final Germination (%)	Final germination capacity
Early Seedling Growth	Radicle Length (mm)	Primary root elongation over time
	Hypocotyl Length (mm)	Hypocotyl elongation over time
Root System Architecture	Total Root Length (cm)	Overall root system development
	Root Length by Diameter Class (cm)	Distribution of fine and coarse roots

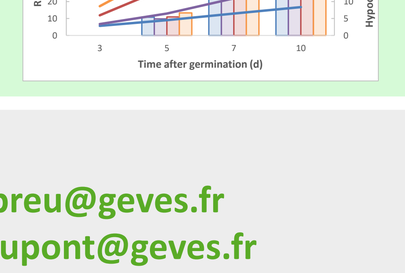
2) Phenotyping Tools for Seed and Plant Assessment

Acquisition systems

Seed Imbibition and Germination



Seedling Growth



Root System Architecture

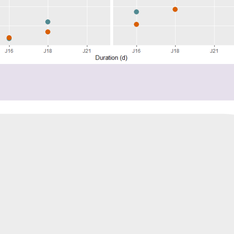


Image Acquisition

Maize

Sugar beet

Wheat

Extracted Parameters

Please feel free to contact us:

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