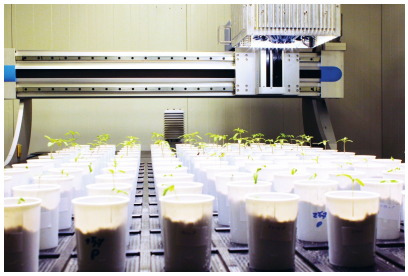
CropFit is a multidisciplinary consortium with expertise on biostimulants and biocontrol. Progeno is a university spin-off company that aims to empower professional plant and animal breeders. Both of them were founded in Ghent University and are working closely together.

CropFit is not only affiliated to Ghent University, but also to HoGent. It aims to develop and transfer its technology, expertise and results on biostimulants and biocontrol through strong partnership with stakeholders and industry. Therefore, it offers a fully integrated expertise that includes extraction and purification of active molecules, screening of new bioactive molecules or promising micro-organisms, identification and characterization of bioactive molecules or micro-organisms, elucidation of the mode of action and testing proof of concept in the field or greenhouse.



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“CropFit combines the work of about 150 researchers in thirty research groups,” says coordinator, professor Geert Haesaert. “We want to enhance people’s life by developing inspiring technologies and sustainable products to improve crop health, crop resilience and crop production with a minimum impact on environment.”

Active molecules

“We adapt biostimulants to be favourable for the growth of specific genotypes of plants. Working on active molecules saves a lot of time. With traditional plant breeding methods, it took, for instance to create a resistant potato cultivar, almost fifty years between the first crossing and an eatable potato. With our approach, we can reach such results much faster. To apply our research results in the agriculture economy, we are actively seeking for industrial partners to collaborate at different levels in projects, from bilateral research, development and application of technologies to licensing of patents.”

Potatoes

Recently, CropFit was successful in developing a durable alternative for a vaccine against the oomycete that causes potato blight, responsible for the deadly famine in

Ireland in 1845-1852. Traditionally, the crops were repeatedly treated with fungicides. This results in undesired ecotoxicological effects, severed by the high frequency of this treatment during some growth seasons. The EU's Green Deal however aims to reduce the use of this kind of fungicides by 50%. "So, a green alternative became a necessity," says Haesaert.

"For this reason, our research groups investigated the possible effects of Green Leaf Volatiles (GLV) on the resistance of potato plants against the *Phytophthora infestans*. This water mold can destroy the complete harvest of an unprotected field in less than ten days. GLV get released from plants that suffered tissue damage. Some of them are giving warning signals to other plants."

"For the popular potato variety Bintje, we could demonstrate that GLV activates several defence related genes. This causes the plant to switch to a higher level of self-defence," explains Haesaert.

Plant breeding for more sustainable crop production

Progeno provides professional plant and animal breeders with a direct access to state-of-the-art breeding and selection methods. Its software framework is centered around an innovative computing engine that allows it to integrate all available breeding data, generally including many years of phenotypic trial observations and sometimes vast amounts of molecular marker information, into reliable (genomic) breeding values.

Progeno has its origins in the long-term scientific symbiosis between the university's departments of plant production and applied mathematics, biometrics and process control. Main founder was Steven Maenhout, who prior to his PhD study during several years worked as a commercial software and database developer. Progeno's academic research is performed in close collaboration with private breeding companies. A large number of private breeding companies already has been actively involved in the design and validation of the Progeno software. This assures the applicability of the findings and algorithms on real world and industry sized data sets.

Cropfit

Progeno
identifies genetic potential

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