

SECTOR SPOTLIGHT

AGRI BIOTECH

At Norwich Research Park the knowledge of plants and microbes is used to address global societal challenges, such as food production, climate change and improving human and animal health. Multidisciplinary research on the Park that directly impacts crop resilience, helps to combat disease and increases yield benefiting both agriculture and the environment.

RESEARCH FOCUS

CROP YIELD

Genomic analysis, bioinformatics, mathematical modelling and imaging techniques has advanced the understanding of how genes influence crop yield. A multidisciplinary approach resulting in enhanced crop performance and increased yields in global crops such as wheat and oilseed rape.

PRECISION AGRICULTURE

Digital analysis, advanced imaging and the manipulation of big data is enabling researchers to evaluate crop performance in the field. Collaborative work between scientists, technology developers, breeders and farmers is accelerating the realisation of commercial benefits from this emerging technology.

CROP RESILIENCE

The pressure from pests, pathogens, poor nutrition and adverse environmental conditions can substantially reduce crop yields. Advances in our understanding of the genetic basis for resilience in wheat and brassicas is supporting breeders to develop improved varieties that will improve the sustainability of agricultural production.

CROP QUALITY

New insights into plant genetics and metabolism, combined with nutritional and clinical studies, is guiding the identification and characterisation of health giving plant natural products and complex carbohydrates. This work is generating opportunities to increase the quality and value of both specialty and commodity crops.



Field pathogenomics is a rapid surveillance technique used to identify the DNA of plant fungi. Initially used to identify yellow rust in wheat the technique has the potential to be applied to other plant and animal pathogens for disease management and plant breeding.

Credit: Cristobel Uauy and Andrew Davis

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Credit: Elliott Mulhall



The Phenospex measures growth and development of plants in field conditions.



KEY RESEARCH ORGANISATIONS

- **John Innes Centre:** world-leading international centre of excellence in plant science, crop science, microbiology and genetics.
- **The Sainsbury Laboratory:** world-leading research institute working on the science of plant-microbe interactions.
- **The Earlham Institute:** one of the UK's leading institutes, applying genomics and computational approaches to advance bioscience.
- **University of East Anglia:** UK top 15 university, world top 200 with major faculties in Science and Medicine.

KEY BUSINESS ORGANISATIONS

- **Germain's Seed Technology:** the world's largest supplier of seed coating and enhancement technology products, systems and solutions to maximise the potential of seed in the field.
- **New Heritage Barley:** a boutique plant breeding company re-evaluating heritage barley varieties for commercial production and for the development of new elite varieties.
- **Leaf Expression Systems:** specialising in the expression and production of proteins, metabolites and complex natural products.
- **Persephone Bio:** a plant natural products company producing bioactive compounds for the skin cosmetics and therapeutics sector.
- **Anglia Capital Group:** investor network with a focus on agri-tech.

Colonisation of legume roots, a live imaging system that can be used with different plant hosts for tracking temporal and spatial of bacterial colonization in different conditions, such as varying nutrient availability. A powerful tool for genetic dissection of the bacterial and host factors that determine root colonization.

SERVICES AND FACILITIES

- **Germplasm Resources Unit:** a national capability that curates thousands of current and historic crop lines and other plants in a controlled environment. This represents the most comprehensive collection of UK small grain cereal germplasm.
- **Genome Enterprise Ltd:** delivers next-generation sequencing and associated bioinformatic analysis. Services include whole genome sequencing, exome sequencing, transcriptomics, metagenomics, methylation sequencing and optical mapping.
- **John Innes Enterprise Ltd:** provide contract research and consultancy services in plant and microbial genetics, synthetic biology, metabolic pathway engineering, crop improvement and bespoke bioassays for plant pests and pathogens.
- **Science Facilities:** Controlled Environment Rooms, Field Trial Facilities and Glasshouses.

BUSINESS SUPPORT

- Free business coaching and mentoring.
- Angel network and grant signposting.
- Networking and events.

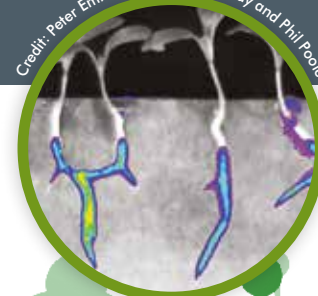
PARK OCCUPIER BENEFITS

- Enterprise Zone business rate discounts.
- Purchasing scheme.
- One Nucleus membership benefits.
- Café and meeting rooms.
- Superfast broadband.
- Free on-site parking and Wi-Fi for visitors.

SPACE

- **Accelerator lab:** Shared bench space plus access to shared equipment lab.
- **Accelerator office:** Shared office space.
- **Bioincubator:** Small laboratory and office units plus access to shared equipment lab.
- **Centrum:** Networking café, medium to large laboratory and office units.
- **Design and build:** Serviced plots ready for development.

Credit: Peter Emmerich, Jeremy Murray and Phil Poole



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