

# Rothamsted Research

where knowledge grows

**Rothamsted Research is the longest running agricultural research station in the world, providing cutting-edge science and innovation for around 170 years.**

Our mission is to deliver the knowledge and new practices to increase crop productivity and quality and to develop environmentally sustainable solutions for food and energy production.



**ROTHAMSTED  
RESEARCH**

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## Rothamsted Research is truly unique, offering:

- around 170 years experience of delivering agricultural science and innovation.
- extensive international and multi-sector collaborative networks developed over many years.
- a truly multi-disciplinary workforce, bringing together knowledge from many different fields.
- the ability to combine detailed laboratory studies (using state-of-the-art scientific equipment) with extensive fieldwork (over 700 ha of experimental land) all within a single facility.

**Our scientific strategy uses a dynamic and integrated approach to crop science, allowing us to study plants from within (e.g. at a molecular level) as well as from their interactions with the environment (e.g. with air, soil, water etc.). This strategy is delivered through four interdependent themes:**

### 20:20 Wheat™



#### **Increasing wheat productivity to yield 20 tonnes per hectare in 20 years**

Ensuring food security is a major challenge for the future. Wheat provides a fifth of human calories, but since 1980 the rate of increase in wheat yields has declined. The average farm yield of wheat in the UK is currently 8.4 tonnes per hectare. Our aim is to provide the knowledge base and tools to increase UK wheat yield potential to 20 tonnes of wheat per hectare within the next 20 years.

### Cropping carbon



#### **Optimising carbon capture by grasslands and perennial energy crops, such as Willow, to help underpin the UK's transition to a low carbon economy**

The UK has an ambitious target of 80% reductions in greenhouse gas emissions by 2050. We will aim to provide renewable and sustainable alternatives for fossil fuel-based products and to translate these into robust technologies and practices that can be used by policymakers, agribusinesses and energy companies to help underpin the UK's transition to a low carbon economy and contribution to future energy security and mitigation of global climate change.

### Designing seeds



#### **Harnessing our expertise in seed biology and biochemistry to deliver improved health and nutrition through seeds**

Seeds are major components in a wide range of foods and animal feeds, so their composition is an important determinant of nutritional value. We will focus on understanding and optimising the nutritional value of the seeds of two crops, wheat and brassicas, with the aim of enhancing their impact on health and well-being.

### Delivering sustainable systems



#### **Designing, modelling and assessing sustainable agricultural systems that increase productivity while minimising environmental impact**

We believe that it is possible to provide secure and increasing amounts of healthy food and make a contribution to the supply of renewable energy without reducing other ecosystem services. We will aim to show how such systems can be delivered through research into better ways of managing pest control, biodiversity, grazed grassland and soils with the overall goal of designing and quantifying sustainable systems.