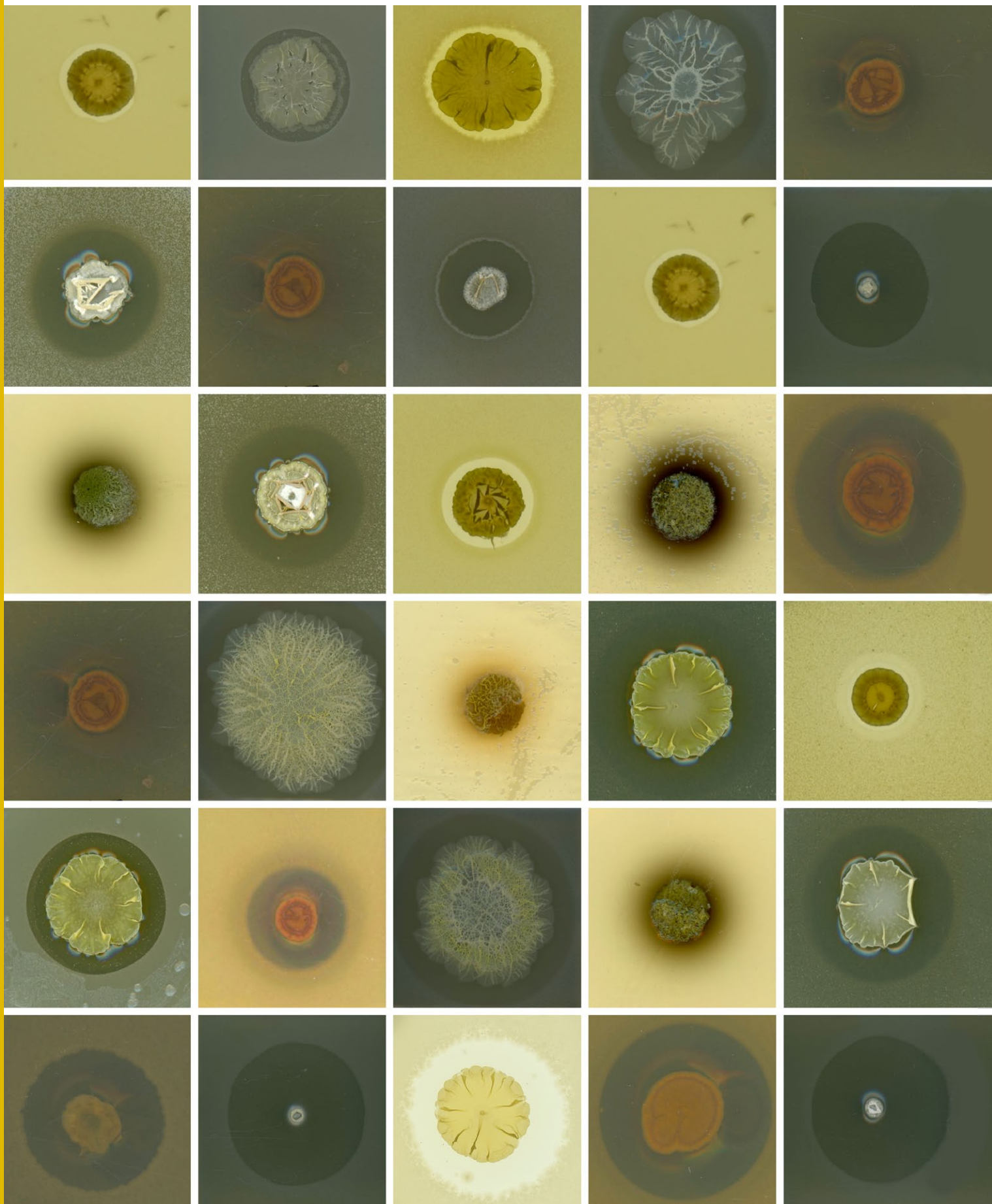
Annual Review

2025 / 2026

Registered Charity Number: 223852

John Innes Centre



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Cover image: *The hunt for new antibiotics: a collation of bioactive screens carried out by Dr Katie Noble in the Hutchings group whilst testing the antimicrobial production of different* Streptomyces *bacteria against pathogens like MRSA,* E. coli *and* Candida albicans.

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Message from our Director

Professor Cristóbal Uauy
Director of the John Innes Centre

I am exceptionally proud of our progress this year.

In particular it is great to see our recruitment efforts paying off and we have welcomed some exciting new appointments to bolster our capacity and widen our areas of research, including appointing a new MSc Course Director, a new Group Leader for plant-insect interactions and an Archivist and Collections Engagement Coordinator (pages 20-21).

We published our new Science Strategy (pages 6-7), outlining key themes and pillars for our research to take us forward over the next decade, ensuring we continue to tackle the biggest challenges in society and deliver lasting impact.

We continue to build strong partnerships with industry to support progress and security in different aspects of UK agriculture, from aeroponic dandelions to traditional sugar beet fields, many of which are in East Anglia (pages 14-15).

Underpinning the future of our science and institute is our Next Generation Infrastructure work alongside The Sainsbury Laboratory, with the Main Laboratory Building planning permission now approved (page 12) and works happening apace.

I hope as you read this Annual Review the depth and breadth of our science comes through, as well as some of the vital culture and enabling work that happens in the background to ensure our institute continues to thrive.

Message from the Chair of the Governing Council

Sir Thomas Hughes-Hallett
Chair of the Governing Council

Cristobal's first year as Director has been marked by some notable successes.

From discovering the secrets of Mendel's peas to help support this climate-friendly crop across the UK, Europe and beyond (page 9) to understanding how hormonal 'messaging' from the maternal plant can help prepare seeds to adapt to their local climate (page 8) the discoveries coming from the institute are both exciting and impactful.

When discussing the work of the institute with others, from industry partners and investors to philanthropists, one thing unites them all: they are all excited about the potential of plant and microbial science to support society.

Our research, these breakthroughs, and the passion of our colleagues is beginning to translate into significant donations, including a huge £5 million investment from the Garfield Weston Foundation for the Next Generation Infrastructure project (pages 12-13).

As we look to the future, we do so with confidence. The strength of our science, the dedication of our people, and the support of our partners place the John Innes Centre in a strong position to deliver discoveries that will benefit society for generations to come.

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About the John Innes Centre

The John Innes Centre (JIC) is a world-leading international centre of excellence in plant science and microbiology based at Norwich Research Park

Since 1910, we have been addressing global challenges through research. Our knowledge of plants and microbes combined with our creative, curiosity-driven approach answers fundamental questions and significantly impacts industrial biotechnology, agriculture, society, and global development.

Healthy Plants, Healthy People, Healthy Planet (HP3) outlines our vision for delivering a safer, healthier and more sustainable future through the power of plant and microbial science.

In collaboration with world-leading academic partners, we are uniquely positioned to lead the fundamental scientific advances needed to address three intertwined, era-defining challenges: hidden hunger, global health threats, and climate change.

Research and Impact

Home to more than **35 RESEARCH GROUPS** working on a variety of plant and microbial science research projects.

HOME TO 10 FELLOWS OF THE ROYAL SOCIETY (FRS), and two highly cited researchers in 2025.

On Norwich Research Park, we are collocated with our partners: The Sainsbury Laboratory, Earlham Institute, Quadram Institute, Norfolk and Norwich University Hospital and the University of East Anglia.

15 SPIN OUTS SINCE 2002 across a range of fields, including biomedical aspects of vaccine production, development of advanced in-field diagnostics tools to speed up testing for high profile viral infections, and support to the pharmaceutical industry and researchers with tools to screen novel anti-infective and anti-cancer compounds.

Culture and Community

We are committed to fostering an inclusive and supportive environment for all staff and students.

Proud to have been awarded the **ATHENA SWAN GOLD AWARD** in 2017, and to renew this award in 2024.

A founding signatory of the **TECHNICIAN COMMITMENT**

STAFF AND STUDENTS FROM 40 COUNTRIES

World class training for the **SCIENTIFIC LEADERS OF THE FUTURE**. At any one time, we are training around 100 PhD students.

Plant and microbial science for healthier plants, people and planet

The coming decade presents an opportunity to address profound interconnected global challenges: climate change, food insecurity, biodiversity loss, and the growing burden of diet-related disease.

The John Innes Centre (JIC) is uniquely positioned to deliver these solutions. We will use discovery science to drive bold, science-led solutions across agriculture, human health, and environmental sustainability.

Our mission is simple and powerful. Discover how plants and microbes function for the benefit of people and planet

Our strategy sets out an ambitious programme of research and partnership that will:

- Deliver more sustainable and resilient food systems
- Improve health through better nutrition and novel medicines
- Strengthen the UK's global leadership in science and innovation

Our research is organised around three integrated themes that together address critical national and global priorities.

Research Themes

SUSTAINABLE AGRICULTURE FOR A HEALTHIER PLANET

The challenge: Food production contributes significantly to greenhouse gas emissions and environmental degradation.

Our response: We are developing innovative approaches to reduce the environmental footprint of agriculture while maintaining productivity.

RESILIENT PLANTS IN A CHANGING WORLD

The challenge: Climate change is already reducing crop yields, with up to 20–30% lost annually to pests and disease.

Our response: We are advancing the science needed to develop crops that can thrive under future climate conditions.

NEXT-GENERATION MEDICINES AND DIETS

The challenge: Poor diet is a leading contributor to ill health, with major economic and societal impacts.

Our response: We are designing plants and microbes that improve nutrition and enable new forms of medicine.

Delivery Pillars

Our ability to deliver impact at scale depends on the strength of our enabling environment.

National Capability

Working across the Norwich Research Park and with global partners, we provide a national capability that supports UK priorities in food security, health, and economic growth.

We combine world-leading discovery research, a creative, interdisciplinary approach across biology, computation and engineering with a strong track record of translation, from fundamental insight to real-world application

Together with our partners, we will turn discovery into impact that delivers lasting benefits for society, the economy and the environment.

Science spotlight

A snapshot of our recent research featured in scientific journals

How maternal messages prime seeds for success

Researchers at the John Innes Centre and Earlham Institute investigated whether developing plant seeds directly sense their environment or gain 'seasonal' information from their parents.

Single cell technology enabled molecular analysis of Arabidopsis cells within the context of their tissue environment. The plant growth inhibitor abscisic acid (ABA) increased in plant specific maternal reproductive tissues when the temperature dropped, helping developing seeds enter dormancy until conditions improved.

This study, highlighting how hormonal transport can influence traits in the next generation, introduces a new tool for developing climate-smart crops.

Professor Steve Penfield, Group Leader, explained: "Plants don't rely solely on evolution or changes in genetics to survive; they can simply acquire the right amount of hormone to pre-adapt seeds to the environment that the mother has experienced."

Adaptation of seed dormancy to maternal climate occurs via intergenerational transport of abscisic acid
PNAS ***DOI:*** *10.1073/pnas.2519319122*

Innovations in spatial imaging could unlock higher wheat yields

Researchers at the John Innes Centre and Earlham Institute are pioneering single-cell visualisation techniques to explain why grains at the bottom of wheat spikes do not reach full size compared to those higher up.

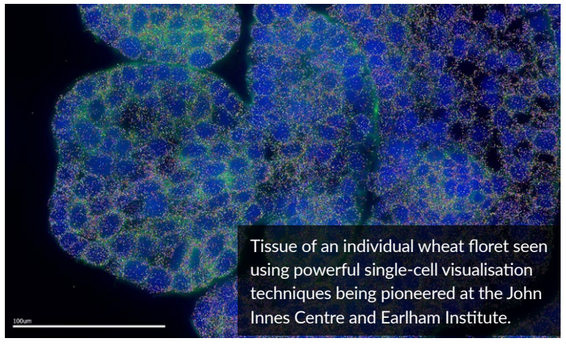
The team applied spatial transcriptomics, an emerging technology that allows visualisation of tissues at single cell resolution within the context of their location in the plant. This technique successfully mapped the expression of 200 genes in spikes at different developmental stages.

A highly distinct expression pattern across spikes was revealed, which could help explain why basal spikelets often produce rudimentary structures instead of harvestable grain.

By offering a blueprint of wheat spike formation, this study will be crucial to improving wheat yields, and this has been made accessible worldwide through an online database.

Co-first author Katie Long, Postgraduate Researcher, explained: "This work provides researchers with valuable gene expression data while promoting wider adoption of spatial techniques through our optimised methods."

Spatial Transcriptomics Reveals Expression Gradients in Developing Wheat Inflorescences at Cellular Resolution
Plant Cell ***DOI:*** *10.1093/plcell/koaf282*



Tissue of an individual wheat floret seen using powerful single-cell visualisation techniques being pioneered at the John Innes Centre and Earlham Institute.

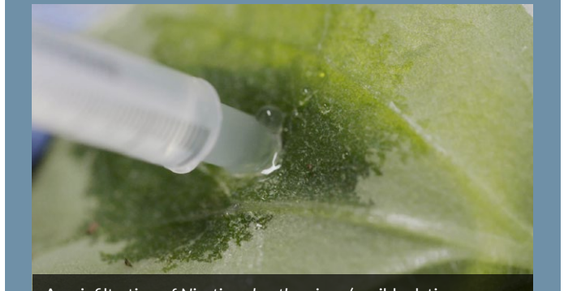
Exploring the power of plants to make drugs out of sunlight

Triterpenes have important defensive functions in plants, alongside influencing the root microbiome and crop quality. These compounds diversify from the same molecule shaped and folded by oxidosqualene cyclases (OSCs) enzymes.

To track them, the group of Professor Anne Osbourn FRS mined genome sequences of 599 plants, selecting 20 genes for functional validation, synthesis, and expression in a wild relative of cultivated tobacco using powerful transient plant expression technology.

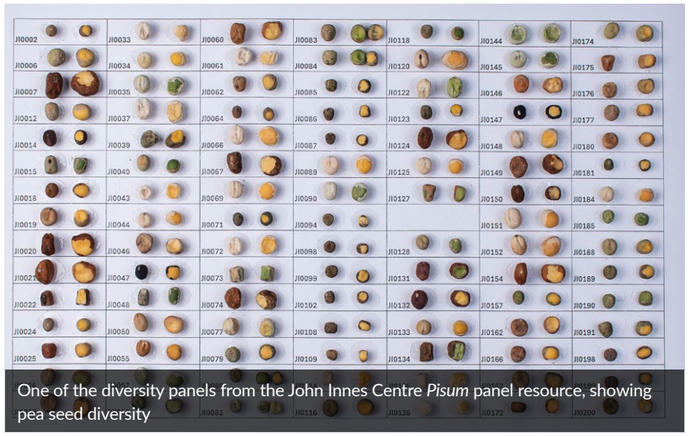
Testing these products, they discovered novel chemistries which could be used as drug leads, reunited triterpene structures with their previously unknown OSCs, and found clues towards their evolutionary journey.

Professor Osbourn said: "We currently have the genome sequences of around 5,000 plant species, but this is expanding exponentially. This is the tip of the iceberg of what is possible."



Agroinfiltration of *Nicotiana benthamiana* (a wild relative of cultivated tobacco plants), a high-yielding, plant-based transient expression system pioneered by the John Innes Centre.

Large-scale mining of plant genomes unlocks the diversity of oxidosqualene cyclases. Nature Chemical Biology
DOI: *10.1038/s41589-025-02034-8*



One of the diversity panels from the John Innes Centre *Pisum* panel resource, showing pea seed diversity

Genomic and genetic insights into Mendel's pea genes. Science
DOI: *10.1038/s41586-025-08891-6*

A legacy unlocked: Mendel-inspired breakthrough that could transform global pea farming

The iconic pea plant experiments of Gregor Mendel laid the foundations for the science of genetics. Now 160 years on, an international research collaboration has used genomics, bioinformatics and genetics to map the diversity of a globally important pea collection – revealing secrets behind the traits that Mendel made famous and uncovering agriculturally useful genetic diversity on an unprecedented scale.

"Our collaboration has created a genomic resource of extraordinary depth and breadth, including the whole genome sequence data for pea," said co-corresponding author Dr Noam Chayut, lead of the Germplasm Resource Unit (GRU) at the John Innes Centre.

The new set of gene bank and genomic resources, available to researchers and breeders worldwide, could revolutionise pea breeding and research into this environmentally important legume crop.

Shining new light on the processes that switch off genes

Epigenetic silencing (genes being switched off as part of developmental programs and in response to environmental cues) governs key biological processes, from flowering time in plants to preventing uncontrolled cell growth that drives cancer in humans.

Previous research from the group of Professor Dame Caroline Dean FRS highlighted the importance of the Polycomb Repressive Complex 2 (PRC2) in silencing *FLC*, a floral repressor gene. Collaborating with the University of York and MRC Laboratory of Molecular Biology, researchers used Arabidopsis to investigate the functional role of dynamic protein polymerization in FLC silencing, with a focus on proteins VIN3 and VRN5 that interact with PRC2.

"We found that there is strength in numbers: when proteins cluster together it helps them retain their association with the packaged DNA – in this case, a region within the gene that is switched off," explains first author Dr Anna Schulten.

While this research could be used to genetically fine tune timing of flowering in crops, it has broader implications because the silencing activity of PRC2 is also found in animals and humans.

VEL-dependent polymerization maintains the chromatin association of Polycomb proteins for the switch to epigenetic silencing. Molecular Cell ***DOI:*** *10.1016/j.molcel.2025.08.002*

An exciting new landscape of protein-related discovery unfolds

A collaboration between Professor Tung Le's group and Cambridge University investigated ParB, a protein vital to cell division and survival. Building on previous research in bacteria, this study revealed the structural component that enables CTP binding (the ParB-CTPase fold) extends further than previously thought, across many forms of life, including archaea, eukaryotes, and viruses. It is also versatile, binding to other nucleotides including ATP and GTP, suggesting previously unrecognised biological functions.

Co-first and co-corresponding author Dr Jovana Kaljević, said: "This shows that evolution has repeatedly repurposed the same molecular architecture for entirely divergent functions across all domains of life." This discovery could lead to insights into genetic regulation, biotechnology applications, and new strategies for tackling antimicrobial resistance.

Versatile NTP recognition and domain fusions expand the functional repertoire of the ParB-CTPase fold beyond chromosome segregation. PNAS ***DOI:*** *10.1073/pnas.2527592122*

ANNUAL REVIEW

Celebrating success

Rapid response launched to tackle new yellow rust strains threatening UK wheat

UK Research and Innovation (UKRI) and the Department for Environment, Food and Rural Affairs (Defra) announced a Rapid Response grant for a research collaboration to mobilisation of research institutes to protect harvests from a newly identified strain of the yellow rust pathogen.

Professor Diane Saunders, Group Leader and lead of the project, said: "Witnessing such a large-scale breakdown in yellow rust resistance in 2025 was unprecedented. However, the recently unlocked diversity in ancient wheat landraces provides a fantastic resource of unutilised genetic disease resistance that can be rapidly mobilised to respond to this emergent threat and ultimately, protect the UK's wheat harvest."

The project brings together the rust pathology and wheat genetic and genomic expertise of the John Innes Centre, the long-standing wheat disease monitoring capability of Niab, and stakeholder engagement via the Defra Wheat Genetic Improvement Network led by Rothamsted Research.

The YR15 rapid response team. Credit: John Innes Centre

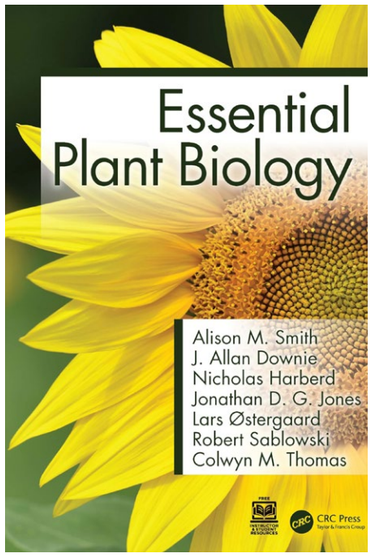
Essential Plant Biology – a new textbook for students and teachers

Essential Plant Biology presents current and comprehensive knowledge of plant biology and highlights important topics for future development and research. This lavishly illustrated textbook is a valuable resource for all students and teachers of biology.

Professor Alison Smith FRS, lead author and emeritus fellow at the John Innes Centre said: "We were inspired to write this book by the stimulating, creative and supportive environment provided by our colleagues."

Published by Taylor and Francis, Essential Plant Biology is available now (ISBN 978-1041081739).

Professor Alison Smith FRS



Advanced Research and Invention Agency (ARIA): two projects receive funding in the Programmable Plants opportunity space

CROSS-KINGDOM IMMUNITY: UPGRADING AND REWIRING PLANT DEFENCES

Dr Carella's team will seek to borrow immunity principles from all forms of life to protect major crops from disease, expanding the scope of their research to investigate immune strategies across bacteria, fungi, and animals to see if they can be redesigned and incorporated into plant immune systems.

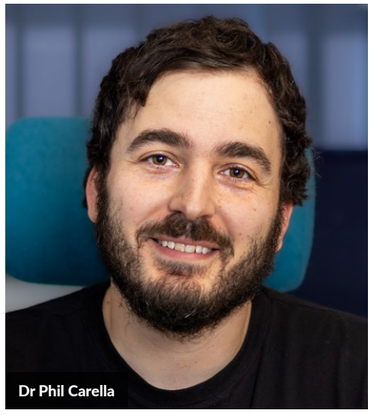
Dr Phil Carella, Group Leader, said: "We aim to address pressing challenges in crop protection through bold biology-inspired innovations. Our vision is to unlock the rich diversity of immune strategies found across nature and to re-wire plant immunity beyond the constraints of their evolutionary history."

ENGINEERING BIOLOGY TO ESTABLISH SYNTHETIC PLANT CHROMOSOME (SYNPAC) TECHNOLOGIES

Led by researchers from the University of Manchester, and in collaboration with Professor Anne Osbourn and Dr David Seung at the John Innes Centre, plus researchers from the Earlham Institute this £8.5M grant will leverage advances in engineering biology to establish synthetic plant chromosome (synPAC) technologies.

Modern agriculture faces significant challenges, from climate change to soil degradation and food security concerns. However, traditional plant breeding and selection can take decades to introduce beneficial traits, relying on random genetic mixing over multiple generations.

The project will look at how engineering biology technologies can be developed and used to provide powerful new ways of introducing novel traits to plants, such as producing essential nutrients or increased pest resistance, while maintaining the plant's existing characteristics.



Dr Phil Carella

Professor Anne Osbourn FRS

Dr David Seung

Global Talent Fund to bring world leading researchers to the John Innes Centre

The John Innes Centre was one of 12 UK institutions awarded an equal share of the £54 million Global Talent Fund (GTF), to attract and support leading researchers and their teams to relocate to the UK.

The new fund will support the recruitment of leading scientists and strengthen our capability to deliver in priority sectors critical to the Modern Industrial Strategy.

Professor Cristóbal Uauy, Director of the John Innes Centre said: "This funding is a major boost to our efforts at the John Innes Centre to attract ambitious world-leading researchers to join our Healthy Plants, Healthy People, Healthy Planet vision.

"By bringing outstanding talent to the Norwich Research Park, we are strengthening the UK's global leadership in bio-based innovation, data-driven biology, and sustainable, high-value agri-tech, key pillars of the UK's Modern Industrial Strategy."

National Research Organisations (NRO) Group

The UK's foremost research agencies and institutes have come together to launch the National Research Organisations (NRO) Group, a new alliance of 35 organisations dedicated to advancing science for the benefit of people, communities, the economy and national priorities.

Professor Cristóbal Uauy, Director, said: "I am proud that our institute is part of the new Group creating a stronger, central voice for research in the UK. The JIC has a long history of delivering science that benefits people, the economy and the environment. By working collectively across organisations we can ensure that our national capabilities are strategically aligned to the UK's most pressing priorities, from sustainable agriculture to healthy diets, and that our science has maximum relevance for society."

NATIONAL RESEARCH ORGANISATIONS

ANNUAL REVIEW

Next Generation Infrastructure

Planning green light for new laboratory design

The John Innes Centre (JIC) and The Sainsbury Laboratory (TSL) have achieved a major milestone in their Next Generation Infrastructure programme with the approval of planning permission for a new Main Laboratory Building (MLB). The 21,000 m² facility will provide state-of-the-art laboratories, office space, technology platforms, training areas and collaborative environments to support world-class plant and microbial science.

Designed to be flexible and future-ready, the MLB will enable researchers to tackle pressing global challenges, including climate resilience, food security and sustainable health solutions. Its open, inclusive layout will foster collaboration and knowledge exchange.

Developed by architects BDP, the project also enhances the local environment through improved connectivity, new walking and cycling routes, and increased biodiversity. Supported by major funders and partners, the MLB will strengthen the UK's research capability and reinforce Norwich Research Park as a global centre of excellence.

The Garfield Weston Foundation invests £5m in world-class research facilities

The John Innes Centre (JIC) and The Sainsbury Laboratory (TSL) have secured a £5 million investment from the Garfield Weston Foundation to advance their Healthy Plants, Healthy People, Healthy Planet vision. This significant contribution will fund the development of Technology Platform 1 (TP1), a cutting-edge 4,500 m² facility incorporating a next-generation glasshouse, insectary, and horticultural research infrastructure at Norwich Research Park.

Designed to support integrated plant–insect–microbe studies, TP1 will allow scientists to investigate crop performance under realistic, reproducible conditions, strengthening the UK's national research infrastructure. The facility will also play a key role in training future scientific leaders and driving innovation in plant and microbial science.

Building on a longstanding partnership, the Foundation's investment will accelerate research with significant benefits for agriculture, environmental sustainability and human health, helping to address major global challenges including food security and climate resilience.

Garfield Weston
FOUNDATION

Working in partnership

Partnerships are central to translating our research into benefits for farmers, industry and society. Working with businesses, growers and academic collaborators enables discoveries to progress from the laboratory through validation and scale-up towards adoption, new products and new markets. Our Knowledge Exchange, Translation and Commercialisation activities act as a bridge between research and external users, connecting scientists with partners, securing translational funding, and developing routes to impact.

During the year, JIC and its partners secured four Defra Farming Innovation Programme awards and demonstrated a commercially promising approach to producing vitamin B12-fortified pea shoots in indoor farms.

Salad packs a healthy punch to meet vitamin B_{12} need

A pioneering research-industry partnership has used advances in indoor farming to grow pea shoots fortified with vitamin B_{12}. This could provide indoor growers and food producers with a new value-added crop while offering consumers an additional dietary source of an essential nutrient.

The partnership between the John Innes Centre, Quadram Institute, University of Bristol, and indoor farm specialists LettUs Grow, harnessed the latest aeroponic techniques to successfully deliver the recommended daily allowance (RDA) of vitamin B_{12} with a 15-gram portion of pea shoots.

Professor Antony Dodd, Group Leader, said: "This novel fortification method can be done at extremely low cost to growers as a way of providing consumers with a cost-effective way of supplementing their diet with vitamin B_{12} in a form that their body can use."

The research offers a new commercially viable approach for dietary supplementation of vitamin and nutrient intake that is predicted to work not only in pea shoots, but in other rapid-cycling salad crops grown in indoor farming environments.

More broadly, the project offers a rapid, cost-effective and sustainable solution to the issue of hidden hunger. This is when people receive enough calories without the mix of nutrients necessary to maintain good health.

LettUs Grow

Supporting UK agriculture to unlock the potential of precision breeding

Together with industrial and academic partners we were awarded funding for four ambitious projects working with sugar beet, oilseed rape, tomatoes and dandelions to drive innovative products to market.

The Defra Farming Innovation Programme, in partnership with Innovate UK, enables research-industry collaborations to develop sustainable new crops, open new markets, and support farmers by harnessing precision breeding techniques.

Protecting sugar beet from virus yellows

A partnership between Professor Steven Penfield's group, British Sugar, and Tropic will use gene editing technology to build genetic resistance in the sugar beet crop to virus yellows disease, described as an 'existential threat' to production and calculated as causing 25% yield losses at a cost of £43m to growers.

Professor Penfield said: "This welcome investment will help us to apply our precision breeding expertise in protecting sugar beet, which is so critical as a break crop, a source of sustainable fuels and a key ingredient in a future, greener biotech economy."

Moving disease-resistant oilseed rape from laboratory to field

Dr Rachel Wells' research group with the University of Hertfordshire, crop-breeders, and farmers will use gene editing to build resistance against several damaging diseases of oilseed rape including light leaf spot, a disease that cost growers an estimated £300m in 2022.

Dr Wells, said: "I am excited to move our resistant plant material from the laboratory to field scale trials to see how it performs in a real-world setting."

The collaboration includes specialist gene editing company Cibus, whose Rapid Trait Development System™ (RTDS®) enables precise genetic edits to be introduced directly into elite OSR breeding lines, significantly shortening the time needed to bring new traits to growers.

Progressing the Sunshine Tomato towards market

This project aims to commercialise the Sunshine Tomato, a gene-edited vitamin-enriched tomato that addresses the critical global health challenge of vitamin D deficiency. New products, including fresh tomatoes, sun-dried tomatoes, and plant-derived vitamin D supplements from the Sunshine Tomato will mean that consumers can benefit from this innovation.

Professor Cathie Martin FRS said: "The Defra/Innovate UK funding recognises the significance and potential of our achievements so far, in bringing the vitamin D_3 gene edited tomato to human trials."

Developing a resilient UK source of natural rubber

Bringing together Norwich Research Park-based startup company QuberTech, JIC's Germplasm Resource Unit, and LettUsGrow, this project will precision breed dandelions, which naturally produce latex/rubber in their root system, so that supply is optimised for indoor aeroponic cultivation..

The aim is to offer a sustainable UK-based supply of a valuable global commodity which is at risk due to climate change and supply chain vulnerabilities.

ANNUAL REVIEW

People and culture

We support our workforce through a combination of networks, training, awareness, and inclusive culture initiatives designed to help all staff and students thrive. This past year we have seen successes with leadership fellowships, further funding for training, and we became a signatory of the Coalition for Advancing Research Assessment (CoARA)

Neurodiversity Project

In 2025 our "Understanding, Valuing and Celebrating Neurodiversity" project supported our aim to create an environment in which everyone feels valued, supported, and able to contribute fully to research and innovation.

This project has now moved onto phase two, and we are working with new partners to increase understanding of neurodivergent experiences and promote inclusive practices.

Dr Clare Stevenson

> Looking back, I am delighted with the progress of the project, and that the training and resources produced through the BBSRC-funded neurodiversity project were so well received.

Dr Clare Stevenson, Head of Science Coordination and Research Culture

Investing in people: the impact of Leaders Plus

Dr Pirita Paajanen

Supporting scientists to balance research careers with family life is a key priority. Our supportive policies enabled Dr Pirita Paajanen as a parent to develop her career. A major turning point for Pirita came through the Leaders Plus fellowship, funded as a pilot to support working parents to progress in leadership while managing family responsibilities.

Through the programme, she clarified her career direction, identified her core values, and actively pursued leadership opportunities. The experience helped shift her mindset towards recognising her readiness for advancement. It provided space to reflect, rebuild confidence, and reconnect with her ambitions.

Pirita has since secured a Group Leader position at the University of Helsinki, demonstrating how targeted support empowers researchers to achieve their full potential.

Coalition for Advancing Research Assessment

In 2025, we joined the Coalition for Advancing Research Assessment (CoARA), committing to reform how research, researchers and organisations are evaluated.

Alongside more than 700 international signatories, we are working to modernise assessment practices so that they better recognise the full diversity of contributions to research. Building on our long-standing commitment to responsible research assessment, including being an early signatory of DORA, we published our CoARA action plan in 2026.

The action plan sets out a programme of work to 2031 focused on valuing diverse research outputs and career paths, strengthening the use of qualitative assessment and narrative CVs, reducing reliance on metrics such as journal impact factors and h-indices, and embedding these principles in recruitment, promotion, training and research culture activities across the institute

EDI Hub +

In collaboration with Newcastle University and partners at the University of Essex, Quadram Institute and Earlham Institute, we secured funding to support to to support the development of bespoke equality, diversity and inclusion (EDI) training for STEM higher education and research environments.

Building on the successful BBSRC-funded Understanding, Valuing and Celebrating Neurodiversity project, the EDI hub + project will co-create EDI training modules addressing the importance of EDI.

Co-developed with a diverse stakeholder group the training will reflect lived experiences across STEM disciplines and will equip staff and students with strategies that foster a culture of shared responsibility, inclusion and respect.

Due for delivery in 2026, the modules will be distributed across partner organisations and made available to the wider UK sector, supporting more inclusive and positive research culture.

Green Horizons: plant science careers for a food-secure future

The BBSRC-funded Delivering Sustainable Wheat Institute Strategic Programme (ISP) hosted a virtual training course for more than 100 undergraduate students from 19 UK universities.

For many students, opportunities to interact with researchers outside the classroom are limited. The Green Horizons course bridged that gap, turning textbook concepts into tangible experiences. The event provided an opportunity for participants to engage directly with modern plant science and showcased potential career paths.

> Keeping informed about scientific breakthroughs beyond your own expertise is key to continual growth of the sector. Innovation, coupled with effective business models, is what drives real change.

Speaking at the Green Horizons event, Professor Richard Flavell, former Director of the John Innes Centre (1987–1998)

Dr Phil Carella, Group Leader, speaking at the APH careers event

Celebrating plant health careers

The BBSRC-funded Advancing Plant Health Institute Strategic Programme (ISP) hosted an event showcasing a range of careers in academia, entrepreneurship, industry and policy to all at the John Innes Centre and The Sainsbury Laboratory.

Inspired feedback from previous events, and by the 2026 "What do researchers do?" report, the team developed a programme which explored career pathways beyond academia. Eight speakers from diverse career paths shared their experiences and offered valuable insights to the participants.

ANNUAL REVIEW

Awards and Honours 2025–26

At every career stage and in every role, our colleagues support exceptional plant and microbial research. Congratulations to all our colleagues who have been recognised for their achievements

Medicine and Life Sciences Division of the European Academy of Sciences

Professor Anne Osbourn OBE FRS NAS was elected to the European Academy of Sciences (EurASc), a non-profit, non-governmental, independent organisation of the most distinguished scholars and engineers performing forefront research and the development of advanced technologies. Anne's research has redefined the interface between genomics and synthetic biology, opening new frontiers in the sustainable production of valuable molecules.

Adam Kondorosi prize

Dr Myriam Charpentier, Group Leader, received this prestigious international award from the Academia Europaea for her groundbreaking research into plant-microbe interactions. The Adam Kondorosi young investigator award specifically recognised Myriam's research into plant calcium signalling pathways allowing root endosymbioses.

> I'm deeply honoured to have received this prestigious award. It recognises my team's dedication, support from collaborators, and the importance of our discoveries over the years and their potential towards more sustainable farming.

Professor Brown awarded BSPP Honorary Membership

Professor James Brown's exceptional contributions to plant pathology have been recognised with an honorary membership to the British Society of Plant Pathology (BSPP).

His influential research on various plant pathogens, including yellow rust and *Septoria tritici* blotch of wheat, has shaped understanding of the evolution of plant diseases and resistance genetics. His group's recent work focuses on ash and elm restoration in the face of ash dieback and Dutch elm disease.

Marjory Stephenson Prize 2026

Professor Mark Buttner, Emeritus Fellow received the Microbiology Society's Marjory Stephenson Prize for 2026. This career award, given for exceptional contributions to the discipline of microbiology, was presented at the Microbiology Society Annual Conference. Mark and his group studied the production of spores in *Streptomyces*, bacteria that are a leading source of antibiotics, and he pioneered *Streptomyces venezuelae* as a new model system for these bacteria.

BSPP President

Professor Saskia Hogenhout FRS, Group Leader, was announced as the President of the British Society for Plant Pathology (BSPP) for 2026. Saskia and her research group dissect the complex molecular interactions between plants, microbes and insects. Saskia's work on phytoplasmas has revealed how these microbes manipulate plant development and defence. Her group also uses functional genomics to understand how aphids, whiteflies, leafhoppers and other sap-feeding insects colonise plants and transmit pathogens.

Appointments and Fellowships

Dr Hassan Salem to lead independent research group on plant-insect interactions

Following an international search, Dr Hassan Salem joined the John Innes Centre as a Group Leader in early 2026.

He is one of the first academics to be supported by the Global Talent Fund and joins the institute from the Max Planck Institute for Biology in Germany. His research on plant-insect interactions focuses on how animals such as beetles, sap-feeding bugs, and their associated microorganisms, influence plant functions. This can include insect-transmitted pathogens, plant immunity and development.

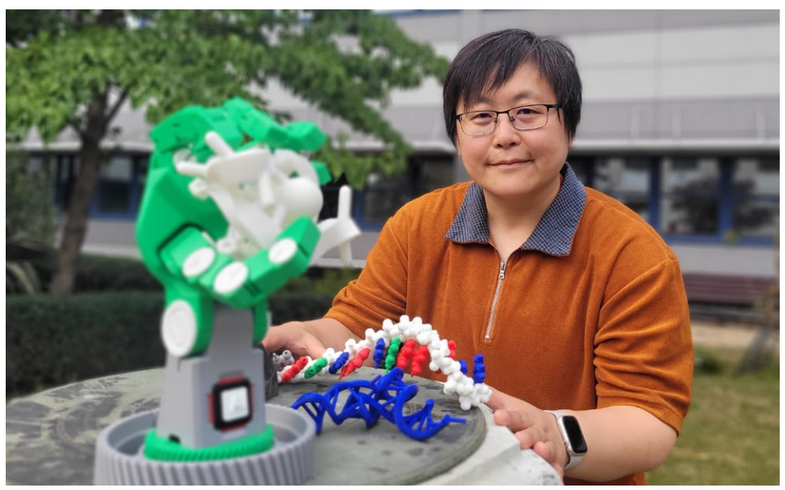
Dr Salem said: "The intimate symbiotic partnerships between insects and the microbes they carry is a vital and fascinating area of research, and the John Innes Centre offers a unique environment for combining expertise in plant biology, microbial metabolism, and genetics.

> The institute's world-class capabilities in genetics, metabolomics, and biochemical analysis will support me and my team to dissect how microbial partners contribute to plant digestion and to the evolutionary success of their insect hosts at a cellular level.

Royal Society Faraday Discovery Fellowship

Professor Yiliang Ding, Group Leader, was awarded a Faraday Discovery Fellowship, a prestigious long-term award worth £8m over 10 years to support exceptional mid-career research leaders in the UK.

Like DNA, RNA is a fundamental molecule in all living organisms, carrying genetic information through its sequence and intricate structures. Using RNA structure profiling methods and Artificial Intelligence (AI) powered models, Professor Ding's research seeks to decode this 'RNA language' to uncover how the sequence and structure of RNA determine its functions in plant cells.



Wellcome Trust Early-Career Fellow

Dr Miguel Montez a postdoctoral scientist has received £1.4m over five years, to fund a project titled: 'Understanding how local 3D chromatin structure determines gene regulation and environmental responses.'

Chromatin is the macromolecule comprising DNA and proteins which make up chromosomes, the genetic information-carrying components of the cell.

In the group of Professor Caroline Dean FRS, Dr Montez's research aims to better understand how chromatin changes in response to the environment, and may allow us to create climate resilient traits in crops and to develop therapies for a range of human diseases.

> The project is focused on discovering fundamental principles that are part of gene and genome regulation and relevant to all complex organisms.

MSc Course Director

Dr Graham McGrann joined the institute in February 2026 as the Course Director for our Plant Genetics and Crop Improvement MSc course. Providing oversight and direction of the curriculum and assessment processes, as well as teaching, Graham also provides students with support and guidance throughout their studies.

Archivist and Collections Engagement Co-ordinator

Alex Healey works with the incredible on-site historic collections, made up of the library of rare botanical books owned by the John Innes Foundation, the History of Genetics library and the John Innes archives, Alex's role is to manage and share the collections, enabling public access by appointment, facilitating group visits, as well as supporting individual researchers.

Future plans

Following the publication of our bold new science strategy (see page 6), the upcoming year will see us focusing on embedding this new vision across the institute and shaping our approach to delivering our new plans by bringing in new expertise, processes and infrastructure

ANNUAL REVIEW

Plans move forward for our new infrastructure and plant and microbial science hub

Our ambitious plan to create a new plant and microbial science hub is continuing to progress. Building work on site will steadily move forward, with the construction of new glasshouse, insectary and horticultural facilities beginning in Summer 2026, providing new facilities which will revolutionise our ability to tackle major agricultural threats, including emerging pests and fungal diseases, and to study crop performance under realistic future climate conditions. Our fundraising campaign will step up a gear to meet the final gap in capital funding for the programme. We will also invest in more resources to support business change, as we transition to new ways of working within JIC, with our partners The Sainsbury Laboratory, and the wider community, as we begin to deliver more activities through the plant and microbial science hub.

New relationships to learn from the community and help us deliver our strategic aims

Our strong collaborations and international outlook are a key part of our success at JIC. Partnerships are essential for achieving many of our scientific and strategic ambitions and we plan to expand on our existing relationships across the wider research community and increase our reach and impact. This year we will be looking at new routes to meet and engage with different communities, including exhibiting and presenting at Groundswell regenerative agriculture conference for the first time, and hosting a national precision breeding conference on site in Norwich.

Expanding capacity to deliver our new strategy

Over the coming year we will build research capacity in the key areas identified in our research strategy, aiming to bring in at least three new Group Leaders over the 2026/27 period. Key strategic areas to increase capacity include discovery plant science, plant-insect interactions, and plant associated microbial interactions, to strengthen our research expertise and support our succession planning.

Our allocation of a share of the Government's prestigious Global Talent Fund last year will also provide opportunities to support further leading researchers and their teams to relocate to the UK. We will also strengthen JIC's scientific pipeline by preparing a new model for fellowship recruitment that will provide staff with greater support as they undergo the process of applying for fellowships, and help attract high-calibre researchers.

A positive and vibrant culture

Achieving our ambitious research outcomes relies not just on the quality of our science but also on our ways of working. Our research culture is a key pillar of our strategy and we recognise that maintaining a positive research culture is an ongoing journey. Over the coming year we will create new resources for our research culture programme, including microbehaviour training, and broaden our intersectional approach to equity, diversity and inclusion by engaging with the AdvanceHE Inclusive Institutes Framework. We will engage with the national chapter of the Coalition for Advancing Research Assessment (CoARA) to learn from and share best practice as we deliver our CoARA action plan commitments. We also plan to review and develop our internal comms approach to ensure we embed a shared culture where everyone is able to thrive.

John Innes Centre

Unlocking Nature's Diversity

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