Academic staff research interests

School of Biosciences, Sutton Bonington Campus, UK

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Agricultural & Environmental Sciences

Dr Liz Bailey

Lecturer in Environmental Science

Liz's research focus lies in understanding trace element speciation and mobility in the Environment. She uses X-ray absorption spectroscopy (XAS) as a tool to understand mechanisms at the atomic level and applies this technique to a range of environmental problems. Current research includes:

- Measuring and modelling chemical cycling in the environment, focusing on trace elements (e.g. Pb, Cd, As), radio-isotopes (e.g. 129-I, U) and beneficial micronutrients (e.g. Se, I) in soils and aquatic systems
- Investigation of element transformations in soils, new approaches to measuring heavy metal reactivity and modeling adsorption and fixation in soils

Dr Matt Bell

Assistant Professor in Agricultural Systems

Matt's research within the Agricultural Systems group integrates disciplines within agricultural research, which broadly covers greenhouse gas emissions, climate impacts, breeding, nutrition, health and welfare in livestock systems. Current research focusing on sustainability of farming systems includes:

- Sustainable production systems, environmental impact and whole farm models
- Improved breeding, feeding and management of livestock
- Novel methods for monitoring farm production and measuring performance
- Measuring methane from ruminant livestock
- Combining experimental and national data records

Professor Neil Crout

Professor of Environmental Modelling

Neil's research interests relate to the development, use and evaluation of models of environmental and agricultural systems. Particular interests include:

- The transfer of trace elements in the environment (radionuclides, toxic elements, micro-nutrients)
- Predicting crop growth and development, in particular the use of models to support farmer decision making and real time yield production.
- Parameterisation, Evaluation, and Simplification of models, including aspects such as uncertainty analysis, credible representation of processes and comparison to reality.

Dr Ian Hardy

Associate Professor and Reader in Animal Population Biology

Ian's research interests centre on the behaviour and ecology of a range of organisms. Particular current topics include:

- Contest behaviour across all animal taxa and especially between parasitoid wasps
- Sex ratios, mating behaviour and social behaviour: in general, in parasitoid wasps and in humans
- Insect nutrition, growth and commercial production
- Biological control of agricultural pests

These research topics adopt a range of approaches, including laboratory experimentation, field work, chemical analyses (e.g. metabolomics, real-time mass spectrometry), analytical modelling (with

collaborators) and using Generalized Linear Modelling and other statistical methods in behavioural and ecological data analysis.

Dr Barry Lomax
Assistant Professor in Environmental Science

Barry's research is focused on quantifying how the Earth's climate has changed over geologic time, how these changes have influenced the Earth's terrestrial biosphere and how in turn the Earth's terrestrial biosphere has influenced climate. Particular interests include:

- Palaeopolyploidy and plant genome size over geological time
- Plant responses to CO_2
- Sporopollenin chemistry as a palaeoclimate proxy

Professor Sacha Mooney
Chair in Soil Physics

Sacha's research is focused on utilizing information on the structural geometry of porous media, in particular soils, to understand and predict its behaviour and subsequent function. Particular interests include:

- root-soil interactions in particular rhizosphere processes and functions
- soil biophysical behaviour
- soil and water management
- imaging of biomaterials using X-ray Computed Tomography

Dr Stephen Ramsden
Associate Professor in Management and Director of University Farm
Steve's research relates to modelling and management of agricultural systems. Current research:

- Agri-environmental trade-offs in Ghana and Thailand
- Energy balances & GHG emissions from straw
- Efficiency & productivity in rice and wheat
- Risk management in agricultural systems
- Optimality & resilience in agricultural systems

Dr Amanda Rasmussen

Mandy's research investigates the regulation and behaviour of adventitious (stem-formed) roots in response to different environmental conditions. These physiological processes are measured using a range of technologies including microCT imaging of the roots in soil, microdialysis sampling of soil nutrients, Dualex and colourimetric analysis of tissue pigments, and stable isotope tracking of nutrient uptake by root types. Current research includes:

- Maize adventitious root type functional differences in nitrogen and water uptake and growth responses in particular in terms of improving nitrogen use efficiency and drought tolerance.
- Effect of wastewater pharmaceuticals on the functions of root types (in maize).
- Improving adventitious root development on cuttings using both model plants and commercially relevant species.

Professor Karl Ritz
Professor of Soil Biology
Karl's research interests are structure and functioning of soil communities, soil structure-biota relationships, plant-soil-microbe interactions. Current research projects include:

- Determining inherent ability of wheat plants to drive soil structural dynamics
- Fundamental basis of biological soil resilience
- Relationships between the architecture and microbiology of the soil surface

- Self-organisation in the soil:plant system
- Novel plant species to remediate structurally compromised soils

Dr Christina Siettou
Assistant Professor in Agricultural Business Management
Christie's research interests are within the Agricultural and Environmental Economics context with main areas being: Economics of Animal Health and Welfare, Consumer Behaviour and Agricultural Business. Current research projects include:

- Avian Influenza and consumer demand for poultry
- The economics of animal transport and welfare

Professor George Shaw
Professor of Environmental Science
George's interests are on the behaviour and impacts of trace contaminants in the environment and include:

- Radioecology - fate and impact of radionuclides in soil-plant systems
- Trace gases in the soil-plant-atmosphere system
  Trace organics and biological substances in soils
- Laboratory, field and computer techniques to quantify contaminant migration, persistence and sequestration

Dr Sofie Sjorgersten Turner
Associate professor in Environmental Science
Sofie research interests focuses on how environmental change impacts on biogeochemical cycling and ecosystem processes. Particular interests include:

- The impact of climate and land use change on ecosystems including biodiversity, carbon cycling and greenhouse gas emissions
- The role of wetlands in the global carbon cycle
- Management of agricultural land to minimise impacts on ecosystem function and services (e.g. carbon storage)

Dr Dov Stekel
Associate Professor in Integrative Systems Biology
Dov's research uses mathematical, computing and statistical techniques to build predictive models in biology. Current projects include:

- Modelling spread of antimicrobial resistance in agriculture
- Modelling gene regulatory responses of pathogenic microbes to stress
- Model-driven interpretation of data from high-throughput assays

Professor Paul Wilson
Professor of Agricultural Economics
Chief Executive, Rural Business Research
Director, Rural Business Research Unit
Paul's research interests are in Agricultural Economics and Farm Business Management, specifically:

- Agricultural policy, efficiency, and productivity analysis
- Farm and farm business decision making
- Determinants of variations in farm business income performance
- Agricultural-Environmental interactions
- Food market analysis of farm to retail food prices
- Food consumer behaviour
- Applied econometrics
- Bioenergy feedstock supply

- Sustainable Intensification in Agriculture

Dr Scott Young
Associate Professor and Reader in Environmental Science
Scott's major interest is in trace element, heavy metal and radionuclide dynamics in soils. Current research interests include:

- Dynamics of heavy metals (Cd, Pb, Hg), metalloids (As) and radionuclides (U, Th, I, Tc) in soils and aquatic systems: novel measurement and modelling approaches
- Availability of micronutrient elements (iodine, selenium, zinc, iron) and major nutrients (N, P, K) to crop plants and natural ecosystems
- Micronutrient biofortification of crops and impacts on the human diet
- Phytoremediation of soils
- Identification of contaminant sources in soils (geochemical forensics)

Dr Helen West
Associate Professor in Environmental Biology
Helen's research interests focus on ecological interactions between plants, microorganisms and invertebrates and specifically on how the interactions are changed by people (e.g. by farming methods, use of agrochemicals and veterinary drugs). Current research areas include:

- Evaluation of wastes derived from sustainable energy systems such as anaerobic digestion and gasification
- Exploring use of bacteria as plant growth-promoters
- Monitoring ecotoxicological effects of veterinary pharmaceuticals
- Determining if algae can 'clean up' industrial effluent

Animal Sciences

Dr Ramiro Alberio
Associate Professor in Developmental Epigenetics
Our laboratory investigates the gene networks and epigenetics mechanisms regulating the generation of pluripotent cells during early embryo development. Our long term aim is to develop novel strategies for the use of embryonic stem cells in regenerative medicine and disease modelling. Current research areas in the lab include:

- Modulation of signalling pathways to promote pluripotent gene expression in embryos and facilitate embryonic stem cell derivation
- Investigations on the mechanisms of germ cell development in mammals and working towards deriving in vitro gametes
- Developing novel techniques for animal transgenesis

Dr Ravinder Anand-Ivell
Associate Professor in Endocrinology and Reproductive Physiology
Research Interests: Ravinder's main focus is on understanding the molecular physiological mechanisms by which cells of the male and female reproductive systems and their hormone target tissues achieve their full functionality, and their associated pathologies. Our research looks at the signalling mechanisms in primary cells of both male and female systems involved in the differentiation processes essential for correct tissue function. The major lines of interest and projects currently running are looking at:

- Understanding the role of the relaxin family of peptide hormones and their receptors, including insulin-like peptides 3 and 6 (INSL3 & INSL6), in both male and female physiology. This work addresses not only the reproductive system but also renal, cardiovascular and skeletal

physiology. To extend our work across species, we have now established highly specific and sensitive immunoassays to measure INSL3 in body fluids from humans, rodents, ruminants and other species
- Understanding non-genomic steroid action in various primary (ovarian, uterine and testicular) and secondary (breast cancer) cell systems
- The role of Oxytocin and its receptor within the female reproductive system
- Analysing and evaluating the effects of various environmental endocrine disrupting chemicals in rodents, ruminants and human
- Monitoring and evaluating longitudinal trends in the reduction of human fertility as well as in declining health during aging

Professor Phil Garnsworthy

Professor of Dairy Science

Phil's research encompasses all aspect of dairy science with particular emphasis on nutrition. Current research projects include:

- Feed efficiency and sustainability of dairy systems
- Variation in methane emissions by individual dairy cows measured on-farm
- Nutritive value of co-products from the bioethanol industry
- Rumen function in relation to the microbiome, the cow genome, and digestive efficiency
- Manipulation of milk fatty acid profile by nutrition and genetics
- Nutritional strategies for enhancing dairy cow fertility

Dr John Harris

Assistant Professor in Neurophysiology

John's research investigates mechanisms behind acute and chronic pain by measuring spinal reflexes using electrophysiological recording and motion analysis techniques. Current research includes:

- How individual muscles in a limb are organized in producing a withdrawal reflex
- How this organization changes in acute and chronic pain states
- The mechanisms underlying excitability changes in the spinal cord ('central sensitization') in pain
- Pain in rheumatoid and osteoarthritis and development of more effective analgesics
- The treatment of osteoarthritis in dogs

Professor Martin Luck

Professor of Physiological Education

Martin is a physiologist with a background in reproductive biology and endocrinology and with wider interests in teaching and learning in the biological sciences. He is interested in how students learn through research and enquiry, in ways of promoting and publishing undergraduate research and in the professionalization of teaching in Higher Education.

Dr George Mann

Associate Professor and Reader in Reproductive Endocrinology

George's research is focused on the elucidation of mechanisms controlling reproductive function in dairy cattle and includes:

- Identifying the relationship between circulating oestradiol concentrations and the intensity of oestrous behaviour in the dairy cow
- Factors regulating the adequacy of circulating progesterone concentrations during early pregnancy in cattle and the efficacy of progesterone therapy
- Hormonal mechanisms regulating angiogenesis in the developing corpus luteum and luteolysis of the corpus luteum at the end of the oestrous cycle

- Studies on the way in which factors such as season and uterine health impact on the reproductive performance of dairy cows

Dr Jean Margerison

Associate Professor in Ruminant Nutrition

Jean's research interests are: Sustainable ruminant nutrition, perinatal calf and heifer nutrition, nutrigenomics and epigenetics, mammary and rumen development, food security and environmental impact, milk composition, biomarkers and technological measurement and interpretation of interactions between animal activity, health and welfare. Some of the current research projects include:

- Perinatal nutrition and its effect on calf development and behavior
- Epigenetic regulation of the mammary gland and subsequent effect on milk yield and animal survival rates
- Sustainable animal nutrition, food security and environmental impact of ruminant production systems
- Improving livestock productivity, health and welfare using biomarkers and activity monitoring

Dr Kate Millar

Director, Centre for Applied Bioethics

Kate's research interests fall under four main areas: Biotechnology Assessment; Bioethical Analysis and the development of Ethical Tools; Animal, Agriculture and Food Ethics; Publics and Stakeholder Engagement in Science Research and Governance.

Current Research Areas:

- Technology Assessment approaches and Ethical Frameworks
- Veterinary and Animal Ethics; Animal - Human Interactions
- Policy dimensions of biotechnology development and use
- Ethics, 3Rs and Animal Experimentation
- Ethical Dimensions of Food and Bioenergy Production
- Making Science Public: Politics and Publics (engagement methods)

Professor Kevin Sinclair

Professor of Developmental Biology

Kevin's research interests primarily concern metabolic programming during early mammalian development, where epigenetic outcomes are determined in embryonic cells and tissues, and long-term developmental consequences assessed in offspring. Current research interests include:

- Genetics of trace element deficiencies in sheep and how these affect embryonic development
- Applying advanced breeding technologies to amplify and distribute bovine genetics to increase production efficiency and sustainability
- Optimising the delivery of superior genetics through advanced genomic selection of bovine embryos

Dr Carl Stevenson

Assistant Professor in Neuroscience

Carl's research investigates the neural circuit and neurochemical basis of fear learning and memory in rodents by combining behavioural testing methods with *in vivo* pharmacology and electrophysiology techniques. This basic research will lead to a better understanding of how the brain encodes emotional memories and how disturbances in this process might contribute to mental illness (e.g. anxiety and post-traumatic stress disorder). Current research examines:

- Regulation of fear memory processing and associated brain function by neurotransmitters (e.g. dopamine) and drugs (e.g. phytocannabinoids)
- Sex differences in learned fear inhibition and associated brain function

- Computational modeling of neural networks underlying fear learning and memory (in collaboration with colleagues in the School of Mathematical Sciences)

Dr Reinhard Stöger
Associate Professor in Epigenetics
Stöger's research interests are: heritability of nucleic acid modifications, chromatin, non-coding RNAs, gene-environment interactions and energy and lipid metabolism. Current research projects include:

- Measurement and manipulation of epigenetic marks in neurodegenerative diseases, X-inactivation and germ cells.
- Measurement and manipulation of the tick rate of the epigenetic clock
- Mitochondrial DNA and lipid metabolism
- Analysing the impact of environmental stressors on honeybee health, combining transcriptomics, metabolomics, and systems biology.

Dr Alan Waterfall
Teaching Fellow in Animal Physiology
Alan's interests are in general anatomy and physiology teaching particularly practical sessions and specialised modules in neuroscience. Current interests are within the field of neuroscience, especially:

- Neurobiology of fundamental animal behaviour and the issue of complexity within nervous systems
- Developing simulations of specific animal behaviours including autonomy and bipedalism

Dr Gavin White
Teaching Fellow in Animal Nutrition
Gavin's research interests fall under the main headings of non-ruminant and companion animal nutrition and health:

- Evaluating the nutritional potential of using bioethanol co-products for pig and poultry production
- Assessing the nutritional value of modern varieties of Oilseed rape (OSR) meal for pigs and poultry
- Sustainable nutrition of the weaned piglet
- Companion animal obesity

Food Sciences

Professor Ian Connerton
2 Sisters Food Group Professor of Food Safety
Ian leads the Food Microbiology and Safety Section at the University of Nottingham. He has been involved in molecular biology research for more than 30 years. His current research interests include:

- Food-borne zoonotic pathogens
- The influence and therapeutic use of bacteriophage against zoonotic pathogens in the human food chain
- The synthesis and delivery pathogen products to host cells and their molecular responses
- Studies of host protein interactions
- Enzyme technology in partnership with agri-food industries: Making use of the traditional benefits of biological catalysts (chemical specificity, mild reaction conditions and low environmental loads) for food applications

Dr David Cook

Assistant Professor in Brewing Science

David's research interests focus on the malting and brewing fields, specialising in:

- micromalting and the development of novel malting processes
- flavour formation in the brewing process
- appraising the flavour stability of lager beers (using elecron spin resonance spectroscopy) and sensory perception of beer flavour
- biorefining and the use of lignocellulosic waste for bioethanol fermentations
- links between crop husbandry, barley microbiology and the functionality of malts

Professor Christine Dodd

Professor in Food Microbiology

Christine's research interests centre on the characterisation of microbial populations at the species and sub-species levels using cultural and molecular approaches and in understanding the factors influencing their composition. Current research areas include:

- Understanding the contribution of non-starter microflora to product characteristics in natural and controlled fermentations
- The factors which influence microbial survival in foods and other environment

Dr Ian Fisk

Associate Professor in Food Chemistry

Ian's research interests lie in the area of food Chemistry, with a specific interest in aroma chemistry and flavour chemistry. Ian's research relates to the real time delivery of aroma and taste (e.g. sugar and salt) compounds. In addition, he runs the analytical chemistry laboratories in the Division of Food Sciences which contain GC-MS, LC-MS and MS-MS-Nose technologies. Current research interests include:

- Flavour Release
- Salt Reduction
- Flavour Delivery and Stability

Professor Tim Foster

Professor in Food Structure

Tim's expertise is in microstructure design through understanding the interplay between ingredients and process, so that the final microstructure is stable / functional in storage, in-use, in-digestion. Tim's research interests include:

- Areas of natural structuring agents
- Rehydration phenomena
- Microstructure changes in physiological environments
- Targeted / controlled release

Dr Rebecca Ford

Assistant Professor in Sensory Science

Rebecca's research interests are: individual variation in sensory perception, multimodal flavour perception, oral somatosensation, beer flavor development and taste signaling pathways. Current research projects include:

- Gustotopic mapping in humans – a high resolution fMRI study to assess detailed gustatory topography and modulations
- Using a combined sensory and analytical approaches to understand mouthfeel perception
- The effect of phenotype on gustatory response, food liking and preference
- The effect of context on emotional response to beer
- Developing understanding and improved sensory quality of low alcohol beer Understanding hop aroma

- Understanding the perception of 'body' in alcoholic drinks
- Promoting entomophagy as a response to food insecurity: Overcoming psychological and sensory barriers

Dr David Gray
Associate Professor, Food Chemistry
David is interested in novel, bio-innovative approaches of incorporating lipids into the diet to improve health, and to reduce the impact on the environment. Current research interests include:

- **Lipid:** Extraction, Analysis, and Phytonutrients (vitamins A and E)
- **Biological Material:** Oilseeds, Green Leaf Material, Chloroplasts, and Microalgae
- **Intracellular Organelles:** Oil Bodies/Oleosomes/Lipid Droplets, Chloroplasts, Natural Emulsions, and Milk fat globules
- **Digestion:** Oils and Fats, Lipids, Functional Food Ingredients
- **Sustainability:** Novel Processing of Oilseeds, Recovering value from green plant waste material

Professor Steve Harding
Professor of Applied Biochemistry and Director of the NCMH
Steve's focuses on developing hydrodynamic methods for the study of the sizes, shapes and interactions of macromolecules. Current research interests:

- Sugars that behave like proteins
- Designing macromolecular blocks against gluten intolerance
- The nature and stability of carbohydrate vaccines
- Y-chromosome DNA & the Scandinavian settlements of Britain

Dr Phil Hill
Associate Professor in Microbiology
Phil's research interests fall into three main areas: Bacterial gene control, imaging and synthetic biology. Current research areas include:

- Construction of reporter gene systems
- Optical and nuclear imaging
- Engineering of bacteria for production of high value compounds
- Anti-Staphylococcal agents

Dr Jon Hobman
Associate Professor of Microbiology
Jon's research interests centre on antimicrobial resistance, bacterial metal ion homeostasis and resistance, and pathogenic enterobacteria. Current research areas include:

- Bacterial resistance to antimicrobial metals
- Gene regulation of antimicrobial metal resistance genes
- Antimicrobial resistance plasmids in Gram-negative bacteria
- Co-selection of resistance
- Laboratory and pathogenic *Escherichia coli*
- Molecular methods for studying bacterial gene regulation and expression

Professor Joanne Hort
SABMiller Professor in Sensory Science
Joanne's research focuses on using sensory science and instrumental techniques to understand how we perceive flavour, especially beer flavour. Current areas of interest include:

- Crossmodal perception - how taste, aroma and mouthfeel integrate to form flavour perception
- Investigating individual variation in perception e.g. supertasters and thermal tasters
- Using functional Magnetic Resonance Imaging (fMRI) to understand flavour perception

- Measuring Emotional response to the sensory properties of beer.

Dr Kenneth Mellits

Associate Professor in Virology, Director University of Nottingham, Monogastric Centre of Excellence

Ken's research is on the enteric disease of monogastric species, focusing on the pig. Current interests include:

- To better understand the mechanism by which the porcine rotavirus counters the host interferon response
- To monitor circulating strains of porcine rotavirus as part of a strategy to produce a viral vaccine to halt transmission of the virus
- To determine the effect of *Saccharomyces cerevisiae* var*. boulardii* on pathogen load, microflora and stress related bowel dysfunction in the pig

Dr Chris Powell

Assistant Professor in brewing science

Chris Powell has a background in microbiology and industrial yeast biotechnology. With experience in yeast physiology, metabolism and genetics, Chris has research interests in:

- Alcoholic beverage production
- Yeast fermentation performance
- Yeast stress response mechanisms
- Microbial identification
- Brewing science and sustainable bioenergy

Dr David Quain

Associate Professor in Brewing Science

David has spent most of his long career working in the brewing industry and accordingly his research is focussed on the applied and practical. These include …

- Propagation, handling and recovery of yeast
- Management, control and acceleration of fermentation
- Draught beer quality – trade audits and impact of hygienic best practice in partner accounts
- The microbiome (sessile and planktonic) of draught beer and role of account and product
- The impact of different microflora on the spoilt beer metabolome

Dr Cath Rees

Associate Professor in Microbiology

Cath's focus of research is the application of molecular biology to fundamental research on micro-organisms of importance to the food industry.

General area of expertise:

- Bacterial gene cloning and molecular biology
- Bacteriophage biology
- Analysis of gene expression
- Use of reporter genes

Genetics and physiology of Gram-positive food borne pathogens:

- Adaptation, survival and transmission of bacteria in the food environment
- Specific focus on Listeria and Mycobacteria
- Interaction of pathogens with food systems

Development of bacteriophage-based detection methods:

- Specific focus on mycobacterial cattle diseases including bovine TB and Johne's disease (M. paratuberculosis)
- Rapid detection of Listeria in the food environment

Dr Andrew Rosenthal

Associate Professor in Food Science

Andrew's interests are in the area of food texture and oral food processing – texture is considered from both physical/instrumental and sensory point of view. Current areas of interest include:

- Creating manageable & interesting textures in pureed food for elderly (to improve the eating experience & quality of life).
- Instrumental measurements of texture changes in fruit during ripening.
- Interactions between our perception and instrumental measurement of food texture (psychorheology).
- Limitations in standard protocols used to measure the texture of food materials.
- Stickiness and its measurement.
- Swallowing thresholds and hard to swallow foods.
- The oral trajectory – understanding the breakdown dynamics in the mouth.
- Thickened liquids for the treatment of dysphagia.

Dr David Scott

Associate Professor and Reader in Physical Biochemistry

David' research is primarily in Biophysics and Structural Biology employing protein crystallography, NMR, Electron microscopy and hydrodynamic techniques such as analytical ultracentrifugation and small angle scattering. These relate in particular to:

- Bacterial resistance
- Plant proteins
- Cancer targets and microbial diseases
- Theoretical work to do with method development

David is currently seconded two days a week to the Research Complex at Harwell as Group Leader in Biophysical Methods and is a Senior Molecular Biology and Neutron Fellow at ISIS Spallation Neutron and Muon Source at the Rutherford Appleton Laboratory, sponsored by the Science and Technology Facilities Council.

Dr Angie Swali

Teaching Fellow in Food Sciences

Angie's research interests to date include impacts during pregnancy (e.g. maternal nutrition/growth) on the metabolic health of the offspring and effect of excess glucocorticoids on the Metabolic Syndrome. Current research interests include:

- Anti-nutritional factors in food
- The effect of food processing on nutritional quality

Emma Weston

Teacher and Industrial Advisor

Emma has a predominantly teaching role within the Division and specialises in translating Food Science principles into realistic modern manufacturing and retail applications for students. She is also responsible for the problem based learning teaching aspects within course structures. Areas of expertise are:

- Food Manufacturing processes
- Routine QA and QC Testing
- New Product Development
- Food Safety and Quality Systems and Auditing
- Technical Management Approaches
- Current and emerging manufacturing technical trends and needs

Dr Bettina Wolf
Associate Professor in Biomaterials Science
Bettina's expertise is in rheology - microstructure - processing - performance relationships of biomaterial/ food systems. Bettina's research interests include:

- Interfacial phenomena: Natural particles and surfactants for emulsion and foam stabilisation – Emulsions for oral destabilisation
- Rheology: Chocolate rheology – Emulsion bulk and interfacial rheology – Hydrocolloid rheology
- Processing: Starchy foods – Novel food ingredients through processing
- Oral processing

Nutritional Sciences

Dr Marcos Alcocer
Associate Professor in Biochemistry
Our research interests fall into two main areas: Protein expression/folding and Food allergy. Our aim is to understand why common food proteins are recognized by the immune system as "foreign" whilst other proteins with similar structures are tolerated? Our model systems: nuts proteins (plant 2S albumins). Current research areas in the lab include:

- **Allergy diagnostics**: we are developing new tools for the clinical diagnose of allergies and safety of vaccines by (i) validating a comprehensive basophil x protein microarray system and (ii) further developing a comprehensive protein microarray and mathematical modelling system
- **Protein allergenicity**: we are characterising the intrinsic allergenicity determinants of major plant derived allergens to use as predictors of allergenicity in novel food proteins
- **NKT work**: we are setting up cell based systems to study the role of key lipid mediators on sensitisation and intrinsic allergenicity of proteins
- **Protein expression:** by developing new strategies for the production of properly folded and in vivo biotinylated proteins in the yeast system, we are developing new tools on the area of nanoparticles and phage display technology

Dr Amanda Avery
Associate Professor in Nutrition and Dietetics and Registered Dietitian
(Also Consultant Dietitian in weight management at Slimming World)
Amanda's main specialist interest areas include:

- Weight management across the life-course
- Infant nutrition
- Diabetes
- Irritable bowel syndrome
- Public health nutrition
- The double burden of malnutrition – obesity and nutritional deficiency

Dr John Brameld
Associate Professor in Nutritional Biochemistry
John has research interests relating to both human and animal nutrition that fall into three broad areas: molecular nutrition, development of body composition and regulation of energy balance. Current research includes:

- Effects of polyphenols and vitamins on cell growth, metabolism and gene expression *in vitro*, as a mechanism for improving human health.
- Regulation of tissue (muscle, fat and liver) growth and metabolism, combining metabolomics, transcriptomics and systems biology approaches in both animal and cell models. This includes

molecular mechanisms for animal feed efficiency and the effects of known and novel growth promoters.
- Novel regulators of energy expenditure and appetite, including use of AAV constructs for gene overexpression in various tissues (e.g. hypothalamus and skeletal muscle)

Dr Lisa Coneyworth

Assistant Professor in Human Nutrition

Lisa's research interests are in the area of micronutrients. Current topics include:

- Seasonal and geographical variation of iodine in dairy products
- Micronutrient status of individuals following restrictive diets

Lisa's teaching interests include:

- Basic nutrition including protein, carbohydrates, fats, vitamins and minerals
- Micronutrient deficiencies in the developing world
- Nutrigenomics and Nutrigenetics

Dr Matthew Elmes

Assistant Professor in Nutritional Biochemistry

Matthew's research interests fall into two main areas: developmental origins of disease and the effects of nutrition on pregnancy outcome. Current research areas include:

- Unravelling the mechanism through which maternal obesity and maternal age increases the risk of dysfunctional labour and emergency caesarean section
- The effects of dietary polyunsaturated fatty acids on prostaglandin production and the timing of labour
- The effects of maternal protein restriction on the adult onset of cardiovascular disease in the offspring

Dr Preeti Jethwa

Assistant Professor in Nutrition

Preeti's overall research interest falls into two main areas: understanding of the control of energy metabolism and investigating factors which influence cognitive function and diseases. Current topics include:

- Understanding the role of VGF in the regulation of insulin homeostasis in seasonal models of obesity.
- Unravelling the mechanism through which maternal vitamin D deficiency increases risk of neurodegenerative diseases.
- Understanding the relationship between lifestyle and mental health in University students
- Determinants of antenatal weight gain and postpartum weight retention

Professor Simon Langley-Evans

Professor of Human Nutrition

Simon's research interests are focused on the early life origins of adult disease. His group study the molecular basis of the association between the diets of mothers in pregnancy and cardio-metabolic disorders in their offspring. Other interests are focused on the development of interventions to prevent poor pregnancy outcomes. Current research projects include:

- Early life programming of the insulin signalling pathway
- Maternal diet and age-related kidney disease
- Discovering biomarkers of early life programming
- Maternal and infant malnutrition in African populations
- Determinants of antenatal weight gain and postpartum weight retention

Dr Fiona McCullough

Associate Professor in Human Nutrition

Fiona's teaching interests are in the areas of dietetic practice, clinical leadership, professional policy and inter-professional learning. She has supervised a number of MSc Advanced dietetic practice projects in areas of specialist dietetic practice including haemodialysis and motor neurone disease. Current research interests include:

- Meat reduction
- Anti-oxidant profile of food and vegetables and containing products
- Diet and diabetes

Professor Tim Parr

Professor in Nutritional Biochemistry

Tim's research interests principally associated with studying the mechanism that influence muscle growth and metabolism. This involves the utilisation of molecular biology techniques, including transcriptomics and metabolomics, to investigate this area. Other research examines the utilisation of technologies to enhance the animal productivity and product quality, as well as identify novel sources of nutrition. Current projects include:

- Determining factors influencing the mechanisms that alter muscle growth, with a focus on improving livestock's feed efficiency
- Vitamin D effects on muscle metabolism
- The role of proteolytic systems in protein turnover and meat quality
- The mechanisms by which exogenous feed enzymes enhance nutrient utilisation
- Insect production systems as an alternative source of nutrition

Dr Kirsty Porter

Assistant Professor in Nutrition and Dietetics and Registered Dietitian

Kirsty's main specialist interest areas include:

- Effect of B-vitamins on health
- Nutrition in older people
- Childhood nutrition
- Diabetes
- Gastroenterology
- COPD

Dr Carol Raaff

Assistant Professor in Human Nutrition

Carol's research interests focus on how we use e-resources and digital media to support communication and behaviour change during dietetic treatment, particularly with children. Current topics include:

- Facilitating communication with pre-adolescent children within a dietetic consultation
- Developing and using e-resources to support face-to-face communication with the dietitian
- Developing and using media to support adherence beyond the consultation setting

Professor Andy Salter

Professor of Nutritional Biochemistry

Andy's interests are on the impact of diet on human health and well-being. Current research interests include:

- Impact of diet on metabolic disease
- Molecular mechanisms whereby nutrients regulate gene expression
- Manipulation of foods (particularly those of animal origin) to improve their impact on human health
- Improving the sustainability of food production (particularly those of animal origin)

Dr Judy Swift
Associate Professor in Human Nutrition
Judy's research predominately involves a social psychology approach to the study of food and eating behaviour. Areas of particular interest include:

- Maternal and childhood obesity
- Communicating obesity, diet and health
- Psychological (particularly cognitive) determinants of obesity

Methodologically, Judy has particular experience in working with:

- Multivariate statistics on large, existing datasets
- Psychometric scale development
- Qualitative research techniques
- Mixed method study designs

Nerissa Walker
Assistant Professor of Nutrition and Dietetics
Nerissa's research areas main research interests relate to complex obesity and bariatric surgery. Particular interests include:-

- The dietary and nutritional implications of bariatric surgery
- The support needs of people following bariatric surgery
- Micronutrient status and supplementation pre and post bariatric surgery
- Longer term implications of bariatric surgery
- Resource development for people following bariatric surgery
- The role of the multidisciplinary team pre and post bariatric surgery

Dr Simon Welham
Assistant Professor in Nutritional Biochemistry
Simon's research interests fall into two main areas: mammalian kidney development and acute kidney injury. Current research areas include:

- The role of cell migration in kidney development
- Identifying pathways involved in renal development which participate in recovery from acute kidney injury
- Determination of the nutritional requirements of the recovering kidney
- Establishment of *in vitro* models of acute kidney injury

Dr Kirsten Whitehead
Assistant Professor in Dietetics
Kirsten's research interests are mainly around how dietitians communicate with their patients in practice. Current areas include:

- Development of a tool to assess communication skills in one to one consultations with patients
- Teaching and assessment of dietetic students communication skills
- Development and evaluation of an open access training package

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Plant and Crop Sciences

Professor Malcolm Bennett
Professor of Plant Sciences
Roots, the *hidden half* of plant biology, have been the enduring interest throughout Malcolm's 30 years research career. Over the past several decades he has pioneered the use of genetics, systems biology and non-invasive CT imaging approaches to characterise root growth and development with BBSRC, EU and ERC grant funding. Current research areas include:

- Dissecting the signals, genes and mechanisms that control root growth and development using a systems biology approach in the model plant *Arabidopsis*
- Translating genetic and mechanistic information gained studying roots in model plants to re-engineer crop root architecture to future proof their performance
- Directly selecting new crop varieties by imaging root systems using an X-ray based approach in the Hounsfield Facility, a new ERC funded CT platform

Dr Anthony Bishopp
Senior Research Fellow
Anthony's research addresses two main themes: how pattern is specified within vascular tissues and how hormonal signalling pathways integrate to regulate plant development. Current research themes include:

- generating mathematical models of vascular patterning and auxin distribution in roots
- understanding how vascular pattern is set de-novo in newly emerging roots
- identifying new mechanisms through which the hormones auxin and cytokinin interact
- understanding the mechanism that provides specificity in auxin response

Professor Martin Broadley
Professor in Plant Nutrition
Martin’s research is underpinned by is the need to ensure food and nutritional security. Current research interests include:

- Mineral nutrient dynamics in soil-plant systems, spanning molecular to agronomic scales
- Developing crops containing appropriate levels of mineral nutrients (e.g. biofortification) whilst optimising fertiliser-use efficiency

Dr Natalie Chapman
Assistant Professor in Crop Genetics
Natalie’s current research areas focus on: understanding the genetic basis of plant resistance and fine mapping fruit quality traits in tomato. Current research interests include:

- Identifying and profiling expression of key genes of agronomic interest
- Plant pathology
- Plant viruses
- Regulation of global gene expression
- Tomato Epigenetics
- QTL mapping of fruit quality traits

Professor Matt Dickinson
Professor of Plant Pathology
Matt’s research focuses on molecular diagnostics of plant pathogens, including work on the cereal rust fungi, root-infecting pathogens of tomatoes, and phytoplasma diseases of a range of plants. Current research interests include:

- Plant microbe interactions
- Plant pathogen diagnostics
- Molecular fingerprinting of bacteria and fungi
- Plant virology
- Cereal rust fungi
- Phytoplasmas
- Diseases of coconuts, oilpalm, sugarcane, napier grass, wheat, potato and tomato
- Changes in gene expression during plant-pathogen interactions

Dr John Foulkes

Associate Professor in Crop Science

John's research interests fall into two main areas: cereals physiology and sustainable agriculture. Current research areas include:

- Identifying traits, mechanisms and genetic markers to improve water-use efficiency and nitrogen-use efficiency
- Exploring diversity for biomass and nitrogen-use efficiency in pre-breeding germplasm (ancestral introgressions, synthetic derivatives and landraces) in wheat
- Understanding the developmental, genetic and physiological bases of ear fertility in wheat
- Developing high-throughput phenotyping approaches for root system architecture and canopy photosynthesis traits

Prof Rupert Fray

Associate Professor in Plant Molecular Biology

Rupert's research interests fall in to two main areas: post-transcriptional gene regulation and synthetic biology. Current research areas include:

- Determining the mechanisms by which mRNA methylation post-transcriptionally regulates gene expression
- Identification and mapping of modified nucleotides in mRNA (plant, yeast and mouse)
- Engineering plants and bacteria for the production of novel taxannes and other anti- cancer metabolites

Dr Andrew French

Assistant Professor in Bioimage Analysis

Andrew's research sits on the boundary between Computer Science and Biosciences, focusing on plant science in particular. Research interests include:

- Image analysis of plants and crops, from cellular- to field-scale
- Developing software for automating phenotyping
- Developing novel software tools to aid biologists and mathematical modellers
- Hyperspectral image analysis of plants

Dr Zinnia Gonzalez Carranza

Assistant Professor in Plant & Crop Sciences

Zinnia's research fall into two areas: abscission & cell separation and plant development. Her current research areas include:

- Ubiquitination, microRNAs and Plant Development: We are studying the effect of an F-box protein from Arabidopsis involved in protein degradation, microRNA biogenesis and plant development. The findings from Arabidopsis are being translated to rice and corn
- Discovering novel genes involved in abscission and other cell separation processes and its uses for food waste management

Professor Michael Holdsworth

Professor of Crop Science

Michael's research interests are in the N-end rule pathway of ubiquitin-mediated targeted proteolysis, oxygen and nitric oxide (NO) sensing, plant-environment interactions, abiotic and biotic stress responses and biochemical genetics. Current areas of interest include:

- Characterisation of the plant N-end rule pathway of ubiquitin-mediated targeted proteolysis
- Understanding the role of targeted proteolysis in sensing plant-environment interactions
- Gasotransmitters and gas sensing
- Providing molecular resources and conceptual frameworks that plant breeders and growers can use

Recent publications highlight the following discoveries:
Abbas et al. Current Biology (2015): Discovery that oxygen sensing is a component of photomorphogenesis.
Gibbs et al. Molecular Cell (2014): Discovery of a general mechanism of nitric oxide sensing in plants.
Gibbs et al. Nature (2011): Discovery of the mechanism of oxygen sensing in plants.

Professor Ian King
Professor of cereal genomics
Ian's interests centre on transfer of genetic variation into wheat from related species.
Areas of research:

- Global food security
- Interspecific hybridisation, chromosome manipulation and plant breeding.
- Comparative genomics, genetic markers, map based cloning and cytogenetics
- Determination of the genetic control of target traits

Dr Julie King
Associate Professor in crop genetics
Julie's interests centre on transfer of genetic variation into wheat from related species.
Areas of research:

- Global food security
- Interspecific hybridisation, chromosome manipulation and plant breeding.
- Comparative genomics, genetic markers, map based cloning and cytogenetics
- Determination of the genetic control of target traits

Dr Susannah Lydon
Outreach Officer
Susie's research interests relate to palaeobotany and plant evolution, particularly Mesozoic seed plants.
Susie is also interested in:

- Science communication in the biosciences
- Schools & teacher engagement in bioscience research

Dr Sean Mayes
Associate Professor in Crop Genetics
Sean's interests involve evaluating genetic diversity in crops and using molecular markers to assist crop breeding. Current research includes:

- Marker assisted breeding in oil palm, wheat, date palm and underutilised crop species
- Development of approaches to translate research data from major to minor crop species
- Mining and combining datasets to develop a new perspective on 'omics data
- Theme Director (Biotechnology) for the Crops for the Future Research Centre in Kuala Lumpur

Professor Sean May
Chair of Plant Cyberinfrastructure
Sean's research interests fall into three main areas: Germplasm, transcriptomics and Bioinformatics.
Current research areas include:

- Providing Genomics resources for the Arabidopsis and wider biocommunity
- Bioinformatics of comparative genomics, particularly cross-species transcriptomics
- The application of ontologies and controlled vocabularies in data exchange.

Dr Erik Murchie

Associate Professor in Crop Science

Erik's research interests focus on the optimisation of photosynthesis in crop plants and the regulation of photoprotective mechanisms. Current research interests include:

- Manipulation of photoprotective processes in crop plants
- Exploiting novel variation in photosynthesis and photoprotection using mutant collections and alien introgression in wheat and rice
- Imaging of cereal crops at high resolution and developing models of photosynthesis to identify *canopy-level* limitations to photosynthesis and photoprotection:
- Optimisation of photosynthesis under LED-based growth systems

Dr Kevin Pyke

Associate Professor in Plant Cell Biology

Kevin is interested in a variety of developmental topics in plant biology centred around the development of plastids and the development of leaves, petals and fruit. Current research interests include:

- Plastid division and development
- Plastid dynamics and stromules
- Leaf development and the control of chloroplast compartment size
- Photosynthesis and chloroplast development

Dr Rumiana Ray

Associate Professor in Crop Pathology

Rumiana's research interests focus on developing sustainable disease and pest management in wheat, barley, oilseed rape. Current interests include:

- Control of Rhizoctonia, eyespot, Septoria tritici blotch and Fusarium diseases
- Fusarium mycotoxins in cereals
- Forecasting crop diseases and yield or quality losses
- Phenotyping resistance and tolerance to biotic stress and pathogen diagnostics
- Plant-pathogen interactions and genetic regulation of resistance to hemi-biotrophs and necrotrophs
- Multi-trophic interactions in disease epidemiology

Dr Tim Robbins

Associate Professor in Plant Genetics

Tim's research covers both fundamental and applied aspects of plant reproduction.
Specifically his research is focussed on:

- Gametophytic self-incompatibility in the model plant *Petunia hybrida*
- Applied research in sweet cherry, plums, coffee and potato

Professor David Salt

Professor of Genome Enabled Biology

David's long term research interest over the last 30-years has been to understand the genes and gene networks that regulate how plants acquire nutrients from the soil, along with the evolutionary forces that shape this regulation. David has taken physiological, biochemical and genetic approaches to tackle this question, and most recently has developed a novel functional genomics approach that combines high-throughput elemental analysis with bioinformatics, genetics, and genomics in both the laboratory and the field. Current research topics in this area include:

- Dissecting the molecular machinery involved in building extracellular barriers to diffusion in the root
- Using natural genetic variation and genome-enabled genetic to discover novel gene functions

- Combining landscape and ecological genomics to uncover the mechanism of plant adaptation to the environment

Professor Graham Seymour
Professor of Plant Biotechnology
Graham's research interests are on the genetic and epigenetic basis of fruit quality traits
Current research interests include:

- Fruit Ripening and especially the mechanism of tomato fruit softening
- Tomato genomics, QTL and epi-QTL mapping
- Epigenetics
- Crop Biotechnology
- Novel Bioactive compounds targeting cancer and autism spectrum disorder

Prof Debbie Sparkes
Associate Professor in Agronomy
Debbie's research interests fall into two main areas: crop physiology and sustainable agriculture.
Current research areas include:

- Sugar beet physiology and agronomy
- Impact of minimum tillage on soil structure and crop production
- The impact of cover crops on soil structure and subsequent crop growth
- Exploiting resource use efficiency and resilience of ancient wheat species

Dr Ranjan Swarup
Assistant Professor in Plant and Crop Sciences
Ranjan is a Molecular Cell Biologist with main interests in root gravitropism, auxin transport and protein trafficking. Current research areas include:

- Role of ER accessory proteins in root development
- Role of non-protein coding RNA in lateral root development
- Impact of root architecture on resource use efficiency

Professor Zoe Wilson
Professor in Developmental Plant Biology
Zoe's research interests fall within the area of plant development, focusing upon plant reproduction and its role in Global Food Security. Current research areas include:

- Molecular gene networks and systems analysis of anther and pollen development
- Controlling fertility for selective breeding and hybrid production
- Effect of temperature stress on pollen development
- Programmed cell death, particularly during plant reproduction

School of Biosciences, Malaysia Campus

Professor Asgar Ali
Professor of Postharvest Biotechnology and Nutrition
Asgar's research is focused in the area of horticulture with emphasis on postharvest biology and technology of fruits and vegetables. In particular:

- Food security: Developing novel and efficient postharvest technologies for reducing food losses
- Replacing chemical control of pests with alternative disease management strategies
- Enhancing the nutritional value of fruits and vegetables for health and well-being
- Postharvest biology and the extension of shelf life of fruits and vegetables

- Organic production of fruits and vegetables and the effect of pre-harvest conditions on the postharvest quality

Dr Susan Azam-Ali
Assistant Professor for Nutrition
Sue's reserach interests are as follows:

- Nutritional evaluation of indigenous fruit and vegetables
- Effects of processing and storage on the nutritional value of foods
- The role of fish in the diets of Malaysian households and individuals

Dr Hui Hui Chai
University Teaching Fellow in Biosciences
Hui Hui's research is focused on crop genetics and breeding. Her current interests include:

- Exploitation of plant and water interactions (drought) in underutilised plant species
- Using tools developed in major species for analysis of minor species
- Genetic analysis for improvement of agronomic traits in crop plants

Dr Acga Cheng
Research Fellow
Acga's research is focused on integrating modern plant breeding with genomics and biotechnology to develop improved crop varieties that offer higher yields and better quality. Research interests include:

- Molecular characterisation of genes controlling major quality traits in rice
- Elucidation of the genetics and mechanisms of development of underutilised crops

Dr Shi Hui Cheng
Assistant Professor in Nutritional sciences
Shi Hui's research focused on the role of nutrition in improving the health and disease, which include:

- Nutritional management of type 2 diabetes
- Nutrition and body weight status
- Complementary medicine which include underutilized plant
- Application of metabolomics in type 2 diabetes

Dr Chin Chiew Foan
Associate Professor in Plant Biology
Chiew Foan's research is focused on the use of omics technologies including genomics, transcriptomics and proteomics for the following applications:

- Identification, isolation and characterisation of biomarkers for marker-assisted selection
- To elucidate cellular and molecular mechanisms in plant cell tissue culture and development
- For genetic improvement of crop plants

Dr Wai Kuan Ho
Post-doctoral Research Fellow
Wai Kuan's research is focused on integrating molecular approaches for crop genetic improvement, in particular:

- Dissecting mechanisms of abiotic stress responses and tolerance in crops
- Evaluating crop genetic diversity and population structure
- Translating omics resources from major and model crops to minor and underutilised crops

Dr Yin Sze Lim

Assistant Professor in Nutrition and Food Microbiology

Yin Sze's research interests include the health potential and mechanism of probiotics and prebiotics in human, animal and insect models. Current research interests include:

- Development of prebiotic plant-based diet for aquaculture
- Development of strategy to remove anti-nutrients such as enzyme inhibitors in legumes
- Profiling of phytochemicals from underutilised legumes

Professor Sandy Hwei-San Loh

Professor in Pharmaceutical Biotechnology

Sandy's research interests fall into two main areas: plant molecular pharming for biopharmaceuticals production and development of pharmaceutical and cosmetic products from natural resources.
In particular:

- Development of alternative platform using plant virus-based transient expression for safer and cheaper production of high value products such as therapeutics, diagnostics and industrial enzymes as well as metabolites in plant system
- Plant-based vaccine development for significant diseases, e.g. Avian Influenza, Dengue and etc
- Elucidation of anticancer, bactericidal, antiviral and immunomodulating mechanisms of plant metabolites, vitamin E isomers (T3 and T4) and tiger milk mushroom
- Determination of scientific evidence-based health benefits and cosmetic potentials of edible bird nests

Professor Festo Massawe

Professor of Crop Science and Head of School (UNMC)

Festo's research is focused on the whole plant physiology and molecular genetics tools related to improvement of crop plants, including:

- Genetic analysis of agronomic traits
- Crop adaptation to environmental stresses
- Evaluation of plant genetic resources and agricultural biodiversity
- Underutilized plant species

Dr Soma Mitra

Associate Professor in Human Nutrition

Soma's research is focused on Public Health Nutrition. In particular:

- Investigation of musculo-skeletal health in school children
- Assessing vitamin D status and deficiency related health effects in a given population
- Bone Health and Post-Menopausal Women
- Investigation of adiposity and related health effects in adult Malaysians, exploring ethnicity related differences

Dr Eunice Ngai

Assistant Professor in Medical Biotechnology

Eunice's research interests are mainly in the field of molecular medicine and cancer research which include:

- Cell behaviours of cancer after the epigenetic drugs treatment
- Gene silencing mechanisms involved in the silencing of tumour suppressor genes
- Gene silencing mechanisms involved in the silencing of gene after gene delivery

Dr Nabin Rayamajhi

Associate Professor

Nabin's interest is in molecular microbiology and infectious diseases. Current research interests are within the following areas:

- Antibiotic resistance in zoonotic pathogens
- Genetic diversity in *E.coli* isolated from various sources

Dr Ajit Singh

Associate Professor of Agronomy

Ajit's research is focused on the management of crops and soils for increased food crop production. In particular:

- Utilization of natural resources like organic manure, rock phosphate, residue management for increased production of food crops
- Cropping systems- integration of nitrogen fixing legumes into cereal based cropping systems
- Seed technology- seed treatment for increased establishment and drought endurance
- Physical manipulation of plant processes by training, pruning, deflowering, defoliation etc. for increased productivity
- Crop management practices for increased phytochemical content
- Bio-energy crops management
- Irrigation management of semi-arid crops

Dr Christina Supramaniam

Assistant Professor of Biotechnology

Christina's research is focused on tropical molecular plant-microbe interactions and industrial biotechnology. In particular:

- Crop protection: Developing new solutions for epidemiology studies and early detection of tropical plant diseases
- Understanding molecular events that lead to disease development in tropical crops
- Biological control of tropical plant diseases
- Production of valuable enzymes from natural bacteria and fungi
- Characterisation and industrial scale production of microbial bio-formulation for the degradation of oil palm biomass and production of natural biogas
- Field monitoring for Ganoderma basal stem rot disease of oil palm

Dr Winnie Yap

Associate Professor in Plant Biotechnology

Winnie's interest is mainly in the field of plant biotechnology, tissue culture, micropropagation and transgenic research. Current research interests are within the following areas:

- Plant improvement via genetic engineering for both commercial and underutilised plant species
- Plant tissue culture on commercial and underutilised crops
- Evaluation of plant secondary metabolites in *in-vitro* regenerated plantlets
- Potential of underutilised crops