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ROTHAMSTED
RESEARCH

Rothamsted Research Annual Report 2002-2003

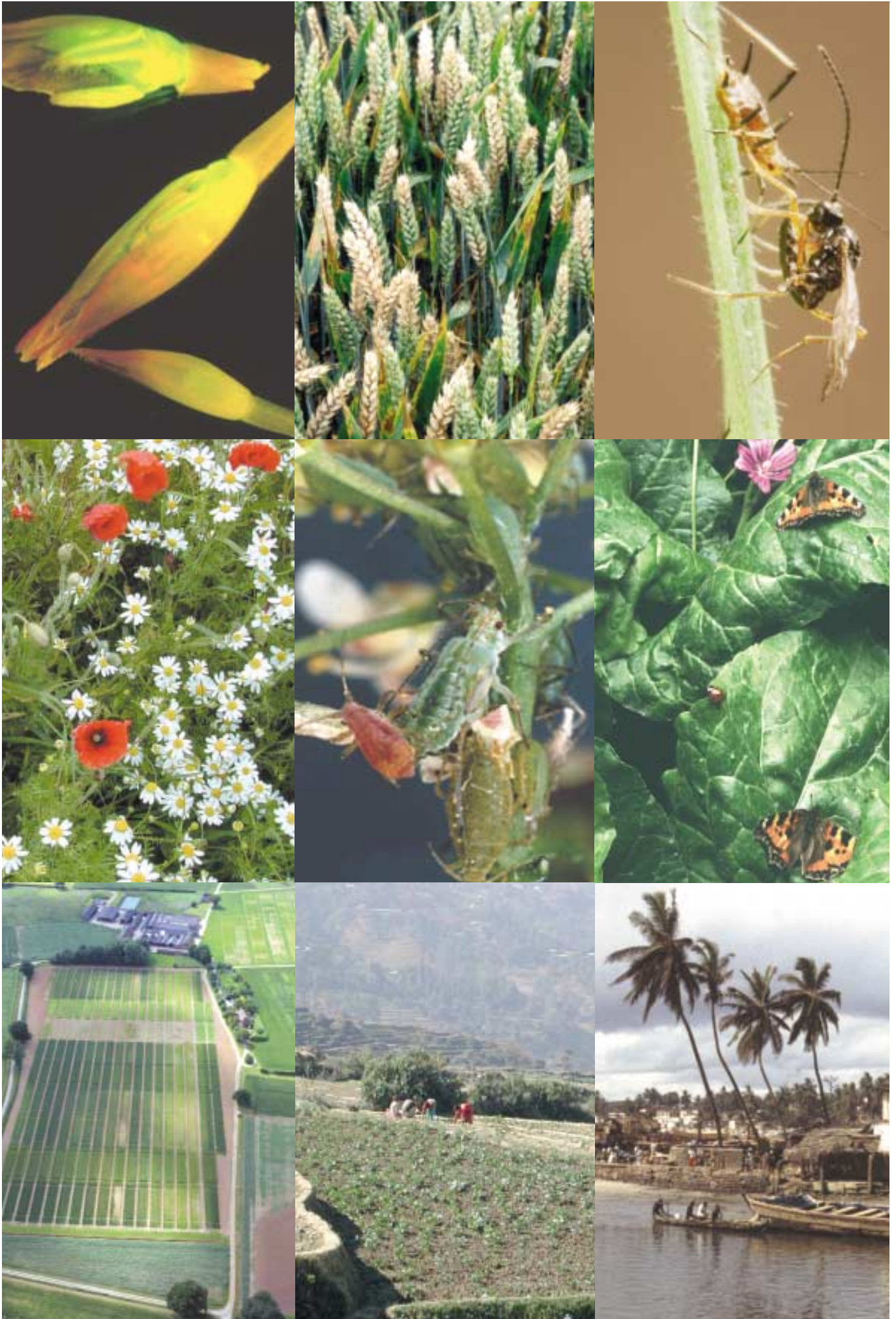
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Research Projects

Rothamsted Research

Rothamsted Research (2003) *Research Projects* ; Rothamsted Research Annual Report 2002-2003, pp 50 - 59



Research projects

Developmental Genetics

Holdsworth, M.J

Regulation and manipulation of gene expression during development and germination of cereal grains

Lenton, J.R

A transgenic approach to analyse susceptibility to pre-harvest sprouting and potential for improved resistance in wheat

Holdsworth, M.J

Analysis of cereal transplastomic technology for preventing the expression and spread of transgenes in pollen

Jones, H.D

Cereal community resources for investigating gene function

Holdsworth, M.J

Defining the genetic control of germination in Arabidopsis

Holdsworth, M.J

Development of the tools required to dissect large plant genomes and their application to a complex region of the maize genome linked to a disease resistant super locus

Holdsworth, M.J

Development of wheat allele (ASOS)

Holdsworth, M.J

Developmental cell biology of oilseed rape pods

Hutty, A.K

Do transgenes predictably alter the expression of the genome? Using wheat grain as a model

Holdsworth, M.J

Functional genomics of shoot meristem dormancy

Holdsworth, M.J

Molecular biology of embryo development and germination

Holdsworth, M.J

Monsanto Case Award

Jones, H.D

Regulatory gene initiative in

Arabidopsis

Holdsworth, M.J

Structural and functional genomics for crop improvement

Holdsworth, M.J

The prevention of pod shatter in oilseed rape

Child, R.D

Tissue culture and transformation of diploid wheat species

Jones, H.D

To further develop, study, optimise and apply enabling cereal transformation technologies

Jones, H.D

Use of maize and rice Mar sequences to stabilise the expression of transgenes in wheat

Jones, H.D

ZEASTAR

Holdsworth, M.J

Signalling and Development

Hedden, P

Molecular cloning and characterisation of genes encoding cytochrome P450s of gibberellin biosynthesis

Hedden, P

Molecular cloning, function and structure of gibberellin-biosynthetic enzymes

Hedden, P

Molecular interactions between ethylene and gibberellin pathways in plants

Hedden, P

Putting insects off the scent; modifying plant semiochemistry to disrupt plant-insect interactions

Shewry, P.R

Regulation and genetic manipulation of gibberellin catabolism

Hedden, P

Regulation of gibberellin biosynthesis

Phillips, A.L

The physiological roles of gibberellin 20-oxidase isozymes in plant development

Hedden, P

The roles of gibberellin 3 β -hydroxylases in plant growth and development

Phillips, A.L

Stress Biology

Foyer, C

Detoxification of reactive oxygen species: Molecular strategies

Foyer, C

Increased nitrogen use efficiency in wheat: Towards a sustainable future (SUSTAIN)

Foyer, C

Integration of primary and intermediary metabolism for optimal resource use efficiency during stress

Foyer, C

Senescence and oxidative stress in plant systems

Foyer, C

The role of extracellular enzymes in xenobiotic metabolism and uptake in plants

Parry, M.A.J

Metabolic Signalling

Halford, N.G

Developing wheat genotypes with reduced nitrogen requirement by manipulation to decrease Rubisco content

Mitchell, R.A.C

Genetic regulation of sink strength in wheat and potato - GRiSSt

Halford, N.G

Improvement of Marama Bean an under-utilised grain and tuber producing legume for Southern Africa

Lawlor, D.W

MARISCO - Improving arable production systems by expressing marine algal rubisco in crop plants
Parry, M.A.J
Metabolic signalling and the partitioning of resources in plants
Halford, N.G
Molecular basis of changes in resource allocation induced by antisense SNRKL gene expression and environmental stress
Halford, N.G
OPTIMISE
Parry, M.A.J
Regulation and manipulation of Rubisco activity in crop plants
Parry, M.A.J
Source/ sink interactions and resource allocation: the role of carbohydrates
Paul, M.J

Metabolic Engineering

Beale, M.H

Cloning and characterisation of genes involved in xenobiotic metabolism
Theodoulou, F.L
Comparison of the metabolome and proteome of GM and non GM wheat
Beale, M.H
Diversification with crambe, an industrial oilseed crop
Glen, D.M
Engineering novel fatty acids desaturases
Napier, J.A
Expression patterns of gluten genes in transgenic wheat and their effect on grain processing properties
Jones, H.D
Fatty acid metabolism
Napier, J.A
Genetic enhancement of nutritional quality of grain sorghum
Shewry, P.R
Impact of water availability during development on the composition and functional properties of wheat
Shewry, P.R
Improved *Striga* control in maize
Beale, M.H
Isolation of DNAs for novel fatty acid desaturase enzymes and their use to manipulate fatty acid and triglycerol

composition in transgenic plants
Napier, J.A
Managing late N applications to meet wheat protein market requirements using pre-harvest Near InfraRed (NIR) sensing
Shewry, P.R
Molecular biology of PUFAs
Napier, J.A
Molecular mechanisms of wheat protein elasticity
Halford, N.G / Shewry, P.R
Polyunsaturates fatty acid biosynthesis: Functional characterisation of novel elongase components
Napier, J.A
Structural and protein engineering studies of novel cereal and oilseed proteins with functional properties or biological activity
Shewry, P.R
The Arabidopsis functional genomics resource network: Metabolic profiling
Beale, M.H
The biochemical and molecular basis for grain texture in wheat
Shewry, P.R
The chemistry and molecular biology of plant signals hormones, defence and terpenoid secondary metabolites
Beale, M.H
The molecular basis for the emulsification properties of seed proteins
Shewry, P.R
Wheat gluten proteins: their characterisation and role in determining the functional properties and end use quality of wheat
Shewry, P.R
Wheat quality improvements through manipulation of storage proteins
Shewry, P.R

Nematode Interactions

Kerry, B.R

Biomangement of root-knot nematodes in peri-urban agricultural systems
Kerry, B.R
Cultivar trial to assess reproductive rates and tolerance, Woburn 2002
Evans, K
Dupont Case award
Barker, A.D.P
Ecology of tritrophic nematode interactions (ECOTRAIN)
Davies, K.G
Impact of nematophagous fungi on potato cyst populations
Kerry, B.R
Integrated management strategies for potato cyst nematodes
Evans, K
Molecular genetics of interactions between plants and sedentary nematodes
Cabrera Y Poch, H.L
PCN Management Options - a desk study
Kerry, B.R
Potato cyst nematode control in Jersey
Kerry, B.R
Spatial distribution, dynamics and genetics of populations of potato cyst nematodes
Evans, K
Survey of South African soils for nematode destroying fungi
Kerry, B.R
The diversity of *Verticillium chlamydosporium* populations and its relevance to the regulation of nematode populations
Hirsch, P.R
The diversity, biology and dynamics of microbial agents that regulate nematode populations in the rhizosphere.
Hirsch, P.R / Kerry, B.R

Pathogen Population Biology & Disease Management

Lucas, J.A

Analysis of infection processes in plant pathogenic fungi

Lucas, J.A

Ascospores, fungicides and epidemiology of Septoria diseases on winter wheat

Fitt, B.D.L

Case Award - Douglas Arkell

Fitt, B.D.L

Characterisation and diagnosis of viruses affecting tropical crops

Jones, P

Development of an optical detection system for diseases in field crops (OPTIDIS)

McCartney, H.A

Development of field testing of fungicide anti-resistance strategies with particular reference to the strobilurin (QoI) group of fungicides

Lucas, J.A

Development of immuno-diagnostic techniques for light leaf spot (*Pyrenopeziza brassicae*) on winter oilseed rape

Fitt, B.D.L

Epidemiology of *Rhynchosporium* to improve barley risk assessment

Lucas, J.A

Epidemiology of winter oilseed rape diseases

Fitt, B.D.L

Evaluation of root diseases of winter oilseed rape in the UK

Evans, N

Evolutionary ecology of fungal plant pathogen divergence

Van Den Bosch, F

Fundamental studies of the interaction between environmental factors, crop pathogens and pests, and crops

McCartney, H.A

Identification of fungicide resistance markers in *Rhynchosporium secalis* and the effect of fungicides on populations of barley leaf blotch

Fraaije, B.A

INCO Fellowship - Dr Zbigniew

Karolewski

Fitt, B.D.L

Indo - UK collaboration on oilseed crops

Nashaat, N.I

Indo - UK collaboration on oilseed crops (visiting scientists)

Nashaat, N.I

Interactions between cropping systems and soil-borne cereal pathogens

Jenkyn, J.F

Investigation into the epidemiology of Kalimantan wilt of coconuts in Indonesia

Jones, P

Optimising control of stem canker on WOR

Fitt, B.D.L

Pest and disease management system for supporting winter oilseed rape decisions (PASSWORD)

Fitt, B.D.L

Quantitative comparative plant disease epidemiology

Fitt, B.D.L

SECURE - Stem canker of oilseed rape: Molecular tools and mathematical modelling to deploy resistance

Evans, N

The role of volatile signals in plant-fungal interactions

Lucas, J.A

Understanding the evolution and dynamics of fungicide resistance development in cereal pathogens

Fraaije, B.A

Weather/disease interactions influencing winter wheat leaf disease epidemics

Van Den Bosch, F

Wheat Pathogenesis

Hammond-Kosack, K

A functional genomics approach to the identification of genes determining fungal pathogenesis of cereals

Hargreaves, J.A

Characterisation of plant virus transmission by fungi

Adams, M.J

Characterisation of resistance to the barley mosaic virus

Adams, M.J

Consortium for the functional genomics of microbial eukaryotes

Hargreaves, J.A

Effects of fungicides on take-all in wheat

Jenkyn, J.F

Epidemiology and control of fungally transmitted cereal viruses

Adams, M.J

Epidemiology of cereal stem base and ear blight pathogens

Bateman, G.L

Fungicides for controlling take-all in cereals

Bateman, G.L

Hazard analysis control of food contamination: Prevention of Fusarium mycotoxins entering the human and animal food chain

Bateman, G.L

Isolation and characterisation of pathogenicity genes

Bowyer, P

Maximising disease resistance escape and tolerance in wheat through genetic analysis and agronomy

Jordan, V.W.L / Lovell, D.J

Optimising the performance and benefits of take-all chemicals

Bateman, G.L

Pathogenicity of non-biotrophic fungi infecting cereals

Hammond-Kosack, K

Population biology and molecular ecology of plant pathogenic fungi

Bateman, G.L

Response of winter barley cultivars to barley mild mosaic and barley yellow mosaic virus

Adams, M.J

Strategies for the integrated control of take-all

Bateman, G.L

Plant Population Biology and Genetics

Karp, A

A weed management support system (WMSS) for weed control in winter wheat

Lutman, P.J.W

Bayesian inference of the genealogy of a predominantly selfing population from multi locus genotype data

Dawson, K.J

Determine effectiveness of AEF6102-04H alone and in tank mixture for control of herbicide resistant strains of black-grass and rye-grass

Moss, S.R

Developing and disseminating decision support tools to the arable sector

Mayes, J.A

Development of population genetic models and statistical methods for inferring parameters

Dawson, K.J

Evolution and characterisation of resistance to ALS inhibiting herbicides in weeds

Moss, S.R

Herbicide resistance management: evaluation of strategies (HeRMES)

Moss, S.R

Herbicide Studies

Glen, D.M

Improving crop profitability by using minimum cultivation and exploiting grass/weed ecology

Moss, S.R

Improving willow breeding efficiency for biomass through the implementation of molecular marker technologies

Karp, A

Integrated control of fungal diseases in willows and poplars for bioenergy

Pei, M.H

Integrated non-fungicidal control of *Melampsora* rusts in renewable energy willow plantations

Pei, M.H

Management of emergent aquatic and riparian vegetation

Newman, J.R

Methods to diversify field margin plant communities

Marshall, E.J.P

Modelling weed crop dynamics and

competition to improve long-term weed management

Cussans, J.W

Novel methods of controlling submerged aquatic vegetation and algae

Newman, J.R

Parameterising the biology and population dynamics of weeds in arable crops to support more targeted weed management

Lutman, P.J.W

Partnership willow breeding

Karp, A

Pest population behaviour in relation to the biological chemistry of willows: towards optimisation of non-chemical control

Karp, A

Population genetics of herbicide resistance in grass-weeds

Karp, A / Moss, S.R

Provision of best practice advice on aquatic and riparian vegetation management

Newman, J.R

Sustainable weed management: development of techniques to balance biodiversity benefits with retention of yields

Lutman, P.J.W

The dynamic nature of introgressive hybridisation in natural and introduced polyploid plants from agricultural and riparian landscapes: An evaluation of molecular tools in willows

Barker, J.H.A

The effects of different crop stubbles and cereal straw disposal methods on wintering birds and arable plants

Marshall, E.J.P

Use of molecular genetics in understanding population biology of key species in arable systems

Karp, A

Invertebrate Population Genetics and Ecology

Denholm, A.I

A review of research into the effects on farmland biodiversity of the management associated with genetically modified cropping systems

Perry, J.N

Agricultural implications of insect population dynamics and the conservation of biodiversity

Woiwod, I.P

An harmonic radar investigation of the navigational performance of honey bees

Woiwod, I.P

Aphid ecology and population dynamics

Harrington, R

Dissemination and exploitation of aphid monitoring data

Harrington, R

Ecological genetics and management of insecticide resistance

Denholm, A.I

Exploitation of aphid monitoring in Europe (EXAMINE)

Harrington, R

Factors influencing resistance proneness and development in aphids

Denholm, A.I

Farm scale studies of GM winter oilseed rape and farmland wildlife

Woiwod, I.P

Field-scale evaluation of GM crops

Marshall, E.J.P

Forces driving changes in spatio-temporal dynamics in the garden tiger moth (*Arctia caja*) over the UK

Perry, J.N

Individual-based spatio-temporal predator-prey dynamics

Perry, J.N

Integrated control of slugs in arable crops

Bohan, D.A

Integrated control of slugs in horticulture

Glen, D.M

Long term trends in insect biomass

Harrington, R

Management of insect pests and viruses of tobacco using ecologically compatible technologies

Denholm, A.I

Modelling the effects on farmland webs of herbicide and insecticide management in the agricultural ecosystem

Perry, J.N

Modelling the spatio-temporal distributions of slugs for scenarios of climate change

Bohan, D.A

Monitoring and management of resistance to neonicotinoids and other insecticides in *Myzus persicae*

Denholm, A.I

Monitoring movement of herbicide resistance genes from farm scale evaluation field sites to populations of wild crop relatives

Woiwod, I.P

Monitoring the response of European populations of *Myzus persicae* to Decamethrin

Denholm, A.I

Natural enemies of arable pests - study of movement and host preferences using molecular markers

Loxdale, H.D

Outdoor lettuce: the control of aphids resistant to insecticides

Denholm, A.I

Population and insecticide resistance dynamics in aphid vectors of beet viruses

Harrington, R

Population genetics of knockdown resistance (kdr) to pyrethroid insecticides in the aphid, *Myzus persicae*

Denholm, A.I

Pyrethroid / OP mixtures for the control of *Helicoverpa armigera*

Devine, G.J

Radar studies on the high altitude movement of aphid predators

Woiwod, I.P

Research into spatio-temporal dynamics for ecological and agricultural populations

Perry, J.N

Sea lice resistance to chemotherapeutants

Denholm, A.I / Devine, G.J

Sustainable control of the cotton bollworm, *Helicoverpa armigera*, in small-scale production systems

Devine, G.J

Insect Behaviour

Powell, W

Behavioural ecology of pollinators

Williams, I.H

Ecological and behavioural side-effects affecting the evolution of insecticide resistance in the aphid *Myzus persicae*

Powell, W

Factors affecting cross-pollination in oilseed rape varieties, particularly low fertility, growing under typical UK conditions

Osborne, J.L

Fungal control of *Varroa destructor*

Ball, B.V

Increasing beneficial insect numbers and diversity in field margins for aphid control

Powell, W

Integrated management of pest and beneficial insects on oilseed rape

Williams, I.H

Integrated pest management strategies incorporating bio-control for European oilseed rape pests (MASTER)

Williams, I.H

MiCo SPA - Microbial control in sustainable peri-urban agriculture in Latin America (Cuba and Mexico)

Pell, J.K

Multitrophic interactions on transgenic plants: Quantifying the risk and determining potential ecological consequences

Pell, J.K

New approaches to studying tritrophic interactions involving resistant transgenic plants

Powell, W

Novel pest and disease control - OSR

Pickett, J.A

Novel strategies for aphid control using entomopathogenic fungi

Pell, J.K

Protocols for laboratory, extended laboratory and semi-field bioassays in pesticide risk assessment schemes for non-target arthropods

Powell, W

Role of foraging behaviour in parasitoid ecology and population structure

Powell, W

Screening pathogens for biocontrol of

Varroa jacobsoni

Ball, B.V / Pell, J.K

Spatial modelling of *Bombus terrestris* and *B. pascuorum* populations in agricultural landscapes

Osborne, J.L

The control of exotic bee diseases

Ball, B.V

Utilising populations of natural enemies for control of cereal aphids

Powell, W

Chemical Ecology

Pickett, J.A

A strategic approach to the effects of pest and disease management on the dynamics of the species complexes of *Bemisia tabaci* transmitted Begomovirus

Wadhams, L.J

Armoured bush cricket investigations

Wadhams, L.J

Biocontrol approaches to aphid control

Wadhams, L.J

Chemistry of rhizosphere interactions between the legume *Desmodium uncinatum* and the parasitic weed

Striga hermonthica

Pickett, J.A

Development of effective control methods for the chicken mite (CHIMICO)

Wadhams, L.J

Exploiting knowledge of western flower thrips behaviour to improve the efficacy of biological control measures

Wadhams, L.J

Field studies: semiochemicals and pest/natural enemy dynamics

Pickett, J.A

Identification of semiochemicals of insect pests with potential for minimising use of pesticides in UK crops

Pickett, J.A

Identification of the sex pheromones of prune aphids

Wadhams, L.J

Improving biological control of thrips and aphids on protected ornamentals

Wadhams, L.J

Insect chemical ecology: identification and production of chemical signals (semiochemicals)

Pickett, J.A

Insect chemical ecology: understanding the roles and underlying mechanisms of chemical signals (semiochemicals)

Wadhams, L.J

INSENSE prototypes - Bee sensing systems for volatile indicator molecules

Wadhams, L.J

Integrated control of wheat blossom midge

Wadhams, L.J

NATO Postdoctoral Fellowship

Pickett, J.A

New semiochemical opportunities from *Nepeta* spp. as a non-food crop

Pickett, J.A

Researching strategies for the control of *Culex* spp. mosquitos

Pickett, J.A

Role of wild habitat in the invasion of cereal crops by stem-borers, *Chilo partellus*, *Busseola fusca*, in Africa

Wadhams, L.J

Insect Molecular Biology

Field, L.M

Investigation with piperonyl butoxide as an insecticide synergist in susceptible and resistant strains of vegetables and cotton insect pests

Moore, G.D

Investigations on the molecular mechanisms of flea resistance to insecticides

Williamson, M.S

Molecular analysis of insect nicotinic acetylcholine receptors

Williamson, M.S

Studies of acetylcholinesterase in *Myzus persicae*

Moore, G.D

The molecular basis of responses by insects to semiochemicals

Field, L.M

The molecular basis of target site and metabolic insecticide resistance

Field, L.M

Pesticide Chemistry

Bromilow, R.H

Behaviour of pesticides in the field in sediment / water systems for use in predicted environmental concentrations (PECs) for surface waters

Bromilow, R.H

Circumventing pesticide resistance through chemistry-led approaches

Khambay, B.P.S

Laboratory column investigation of preferential flow of pesticides;

particularly the loading and unloading of macropores

Bromilow, R.H

Nutrient Dynamics

Goulding, K.W.T

Advanced terrestrial ecosystem analysis and modelling (A TEAM)

Glendining, M.J

An interactive study on S Cycling and C, N & S interactions in agricultural ecosystems

McGrath, S.P

Application and development of a UK nitrous oxide emission model

Goulding, K.W.T

Assessing the role of dissolved and particulate organic matter (DON/PON) in N cycling within natural, semi-natural and agro eco-systems in the UK

Goulding, K.W.T

Assessment of P leaching losses from arable land

Brookes, P.C

Atmospheric deposition and its impact on ecosystems

Goulding, K.W.T

Carbon and nitrogen transformations in soils

Goulding, K.W.T

Development of a prototype soil nitrogen supply calculator

Goulding, K.W.T

Environmental benchmarks of arable farming

Goulding, K.W.T

Framework to evaluate farm practices to meet multiple environmental objectives

Goulding, K.W.T

Harnessing tillage x nutrient management interactions using participatory approaches to improve rice wheat systems productivity and sustainability

Gaunt, J.I

How far will medium term weather forecasts improve assessment of risks?

Glendining, M.J

Improving the physiological and agronomic basis of UK lupin production

Shield, I.F

Increasing the efficiency of phosphate fertiliser use

Brookes, P.C

LIFE - The effect of ploughing after non-inversion tillage

Donaldson, G

Livelihoods improved in Bihar and Uttar Pradesh

Gaunt, J.I

Long-term experiments in nutrient cycling research

Powelson, D.S

Long-term sustainability of cereal yields

Goulding, K.W.T

Modelling nitrogen fluxes in tundra ecosystems on Svalbard

Poulton, P.R

Paradigms for modelling environmental systems

Whitmore, A

Soil microbial, organic matter and nutrient interactions

Brookes, P.C

Strengthening rural services for improved livelihoods in Bangladesh

White, S.K

Sulphur dynamics in the soil/crop/atmosphere system

Zhao, F.J

Technology transfer: effective nutrient use for arable crops

Goulding, K.W.T

The Coates Farm Study II - Nitrogen flows in a changed mixed farming study

Goulding, K.W.T

The impact of land management practice on the global warming potential (GWP) of UK agriculture

Goulding, K.W.T

Using long-term experiments to study the sustainability of agroecological systems

Poulton, P.R

Using the PSALM model to interpret the phosphate change point and its relation with iron in the soil

Addiscott, T.M

Nutrient Acquisition

Hawkesford, M.J

A novel method for diagnosis of S deficiency and its development as a practical tool for routine testing

BlakeKalf, M.M.A

Does soil mechanical impedance cause changes in plant gene expression?

Hawkesford, M.J

Dynamics of nutrient pools in plants and their relationship to crop growth, yield and quality

Barracough, P.B

Effects of nitrogen supply on the wheat endosperm transcriptome

Hawkesford, M.J

Establishing the potassium requirements of modern, high yielding sugar beet crops for yield and beet quality

Barracough, P.B

Optimising nutritional quality of crops

Hawkesford, M.J

P diagnostics for oilseed rape crops

Barracough, P.B

Plant use of nitrogen (PLUS N) research training network

Miller, A.J

Regulation of sulphate transporter gene expression and sulphur metabolism in cereals, source-sink interactions and sulphur supply to grain tissues

Hawkesford, M.J

Smart plant technology for sensing crop nutritional status

Hawkesford, M.J

Soil sensors for nitrogen availability

Miller, A.J

The cell biology of nitrogen acquisition and allocation

Miller, A.J

Soil Protection and Remediation

McGrath, S.P

Development of a predictive model of bioavailability and toxicity of copper in soils

McGrath, S.P

Development of a predictive model of bioavailability and toxicity of nickel in soils

McGrath, S.P

Effects of inorganic metal salts on soil microbial activity

McGrath, S.P

Effects of metal salts on soil fertility - Phase III

Chaudri, A.M

Effects of sewage sludge applications to agricultural soils on soil microbial activity and the implications for agricultural productivity and long-term soil fertility

Chaudri, A.M

Effects of sewage sludge applications to agricultural soils on soil microbial activity-implications for agricultural productivity and long term soil fertility - Phase II

Chaudri, A.M

Effects of sewage sludge on long term soil fertility: Phase III

Chaudri, A.M

Effects of Zn contamination on soil microbial processes

McGrath, S.P

Evaluation of the factors controlling selenium and cadmium uptake by cereal crops

Zhao, F.J

Identification of genes involved in cadmium hyper-accumulation in a higher plant, *Thlaspi caerulescens*

Hawkesford, M.J

In situ remediation of industrial soils using red mud

McGrath, S.P

International project for the remediation and inactivation of metals *in situ* (IMPRIMIS)

Lombi, E

Phytoremediation of contaminated soils

McGrath, S.P

Research on assessment of polluted soils and their remediation

McGrath, S.P

Research on assessment of polluted soils and phytoremediation

McGrath, S.P

Rhizoremediation of land contaminated with persistent organic pollutants; elucidation manipulation and modelling of the processes involved

McGrath, S.P

Selection of plant genotypes from Kazakhstan flora contributing to alleviation of heavy metal hazard to human and animal health

McGrath, S.P

Soil protection and remediation by chemical and biological approaches

McGrath, S.P

Carbon Cycling

Powlson, D.S

Agronomy of reed canary grass and switchgrass

Christian, D.G

Dynamics of organic carbon in soil

Powlson, D.S

Enviros composting project

Brookes, P.C

Evaluating grasses as a long term energy resource

Christian, D.G

GM impacts on the soil gene pool, microbial activity and diversity

Hirsch, P.R

Governing a trial of the suitability of switchgrass and reed canary grass as a bio-fuel crop under UK conditions

Christian, D.G

Microbial function in nitrogen and carbon transformations

Gaunt, J.L / Powlson, D.S

Provision of information on crops with potential use as a biofuel

Powlson, D.S

Soil carbon fluxes and land use change: modelling component for national carbon dioxide inventory

Falloon, P.D

Soil microbe diversity and activity

Hirsch, P.R

STAMINA - Stability assessment for arable land use on sloped terrain under increased climatic variation

Richter, G.M

The hydrological impacts of energy

- crop production in the UK
Christian, D.G
To develop a robust indicator of soil organic matter status
Gaunt, J.L
UK emissions by sources and removals by sinks due to land use, land use change and forestry activities
Falloon, P.D / Smith, P
Understanding the paradox of organic matter mineralization
Brookes, P.C
- Biomathematics**
Thompson, R
- A rational design basis for design of wheat canopy ideotypes for UK environments
Semenov, M.A
A strategic approach to the effects of pest and disease management on the dynamics of the species complexes of *Bemisia tabaci* transmitted Begomovirus
Van Den Bosch, F
Analysis of transient weed dynamics in environments with periodic change and its application to weed population dynamics in crop rotations
Van Den Bosch, F
Application of non-linear mathematics and stochastic modelling to biological systems
Semenov, M.A
Appropriate dose network: new fungicide performance information for wheat growers
Verrier, P.J
Assessing predictive skills of crop models to optimise crop management in the UK
Semenov, M.A
Communicating variety recommendations in the 21st century
Thompson, R
Development of algorithms for the design and analysis of biological experimentation
Payne, R.W
Extension of systems of genetic improvement
Thompson, R
INTEREST (Interaction between the environment, society and technology)
Riley, J
- Investigate and develop different modelling approaches in extending understanding and quantification of biological systems
Van Den Bosch, F
Modelling approaches with applications to modelling dispersal and gene flow in populations
Thompson, R / Van Den Bosch, F
Modelling life-history / dispersal-strategy interactions to predict persistence and diversity in agricultural landscapes
Thompson, R
Monte Carlo methods for detecting and using interacting quantitative trait genes
Thompson, R
Representative Soil Survey Scheme
Thompson, R
Research in statistics relevant to biological processes
Thompson, R
Risk assessment for biological control of pest slugs using a slug parasitic nematode
Semenov, M.A
Transgene induced life history changes and the ecology of GMO crops
Van Den Bosch, F
VSN - Visualisation, Statistics and Numerics
Payne, R.W
- Sugar Beet Improvement and Production**
Pidgeon, J.D
- A drought tolerance screen for existing beet varieties: adding value to NIAB variety trial results
Pidgeon, J.D
A novel approach to achieve tissue specific transgene expression in plants
Mutasa-Göttgens, E.S
Assessing drought risks for UK crops under climate change
Mitchell, R.A.C
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