## SCRI Research Programme ongoing as at 1 October 2005

The research programme is commissioned by SEERAD and a variety of other funders. The list contains the body that awarded this grant and the title of the project and, in the case of SEERAD, the commissioning number is included.

SEERAD Core	
SCR/540/00	Genetics of cultivated potato.
SCR/541/00	Genetic approaches to the evaluation and utilisation of soft fruit germplasm.
SCR/574/01	Development and application of metabolic profiling technologies to enhance the understanding and developmental processes in plants.
SCR/577/01	Molecular plant diversity and germplasm resources.
SCR/578/01	Parallel gene expression technologies supporting the discovery of plant and pathogen genes important to agriculture and biotechnology.
SCR/580/02	Suppression of gene silencing by virus proteins.
SCR/581/02	Cell and tissue engineering in barley and potato.
SCR/583/02	Variation in pathogenicity in Globodera spp. in relation to host resistance.
SCR/584/02	Approaches to regulate the L-ascorbic acid content of commercially important plants.
SCR/585/02	Genetics of cultivated diploid potatoes.
SCR/590/03	Developing physiologically based model linking genetic variation among individuals to the sustainability of biodiversity at the scale of the community.
SCR/591/03	Understanding the role and function of virus proteins in the establishment of systemic infection.
SCR/592/03	Exploitation of barley mutant populations.
SCR/593/03	Defining stability of host-pathogen dynamics of fungal leaf blights in heterogeneous barley and other graminaceous canopy structures.
SCR/594/03	Biophysical and physiological interactions at the root-soil interface.
SCR/595/03	Interpretation and application of indicators of ecosystem sustainability.
SCR/596/03	Molecular mechanisms in alternative splicing.
SCR/597/03	Population biology, molecular evolution and epidemiology of potato late blight ( <i>Phytophthora infestans</i> ).
SCR/598/03	An integrated and quantitative approach to the exploitation of sequence data from plant genomes.
SCR/599/03	The bioavailability and bioefficacy of soft fruit antioxidants.
SCR/600/03	Exploration and exploitation of phytochemical diversity in the Commonwealth Potato Collection through metabolite profiling.
SCR/601/03	Characterisation of novel genes from the <i>Erwinia carotovora</i> subsp. <i>atroseptica</i> genome sequence and their effects on corresponding response genes in potato.
SCR/602/03	Nuclear dynamics and small novel RNAs in the regulation of plant gene expression.
SCR/603/03	Gene based marker development for exploitation in barley.
SCR/604/03	Quantifying the role of environmental perturbation and plant genotypes in creating resilient and sustainable agroecosystems.
SCR/605/03	Interpretation of microbial functional interactions in the carbon and nitrogen cycles for the effective management of sustainable arable ecosystems.
SCR/606/03	Connecting barley genotype to phenotype with focus on grain quality traits.

## Research Projects

SCR/607/04	Nuclear involvement in plant virus infection.
SCR/608/04	Development of durable resistance to potato and berry fruit viruses.
SCR/609/04	Floral transition of Arabidopsis and barley.
SCR/610/04	Produce pathogen-tested stocks of <i>Rubus, Ribes</i> and <i>Fragaria</i> and screen <i>Rubus</i> germplasm for insect resistance to support berry fruit breeding at SCRI.
SCR/611/04	Genetic basis of plant cell-to-cell communication.
SCR/612/04	Isolation of plant proteins involved in macromolecular trafficking.
SCR/613/04	Development of virus-induced gene silencing (VIGS) for high-throughput functional analysis of novel genes in plants.
SCR/614/04	Functional analyses of resistance in potato to the late blight pathogen <i>Phytophthora infestans</i> and the potato cyst nematodes <i>Globodera pallida</i> and <i>Globodera rostochiensis</i> .
SCR/615/04	Functional analysis of pathogenicity in potato cyst nematodes.
SCR/616/04	Enhancing food quality and nutritional value by exploring the limits of carotenogenesis in potato.
SCR/617/04	Construction and exploitation of a BAC library of barley cv. Golden Promise, the recently adopted 'academic reference strain'.
SCR/618/04	Integrating a physical and functional map of the red raspberry (Rubus idaeus) genome.
SCR/619/04	Maintenance and exploitation of genetic diversity in the Commonwealth Potato Collection and other diverse <i>Solanum</i> germplasm.
SCR/620/04	Comparative sequence analysis and the isolation of a PCN resistance QTL on potato linkage group V.
SCR/621/04	Manipulating arable plant communities to sustain a diversity resource for invertebrate trophic groups.
SCR/622/04	Manipulating crop-weed communities to optimise weed diversity and crop yield in arable systems.
SCR/623/04	An investigation of the agroecology of the peach potato aphid (Myzus persicae).
SCR/624/04	Development and maintenance of a database infrastructure together with analysis and visualisation tools for plant genomics data with special emphasis on gene expression, protein targeting and sequence polymorphism data types.

## SEERAD Flexible Fund

SCR/833/00	Microsatellites as population genetic markers.
SCR/589/02	Novel methodologies and tools for the analysis of germplasm collections.
SCR/842/02	Elucidation of regulatory and signalling networks that control bacterial disease development.
SCR/901/02	Soil stability and resilience: the interplay between biological and physical recovery from stress.
SCR/902/02	Functional characterisation of appressorial infection stage-specific proteins from <i>Phytophthora</i> infestans.
SCR/903/02	A comparative SNP-based approach to identify and mine genes controlling root traits in the Triticeae.
SCR/906/03	Factors affecting the prevalence of clones of <i>Myzus persicae</i> in Scotland, particularly those with aphicide resistance, and implications for virus control in seed potatoes.
SCR/907/03	Viral-based functional genomics of the Golgi apparatus.
SCR/908/03	Post-genomic analysis of <i>Erwinia carotovora</i> virulence responses in <i>in vitro</i> and <i>in planta</i> environments.
SCR/909/04	Function of the exon junction complex in the plant nucleolus.
SCR/910/04	The genetics of gene expression in barley.

SCR/913/05	Characterisation and development of gene silencing in <i>Phytophthora infestans</i> for high-throughput determination of gene function.
BSS/842/04	Elucidation of regulatory and signalling networks that control bacterial disease development.
BSS/843/04	Control of pulmonary adenocarcinoma (jaagsiekte) in the Scottish sheep flock.

External research contracts	
BBSRC	Stacking of novel anti-nematode and anti-feeding site factors to obtain resistance against plant parasitic nematodes.
BBSRC	UK cereal genomics consortium exploiting genomics, agri-food and environment.
BBSRC	Association genetics of UK elite barley.
BBSRC	Metabolic and proteomic profiling of interaction between plants and root knot and cyst nematodes.
BBSRC	Visualisation and modelling of plant morphogenesis: a dynamic toolkit for cell expression and fluorescent cell reporters in roots.
BBSRC	Visualisation and analysis of biological sequences, alignments and structures.
BBSRC	Targeted induced mutation discovery in barley.
BBSRC/University of Abertay	Plant root and microbial influence on soil water relations and structural stability.
British Council ARC Programme	A physically based understanding of crack genesis in soil and the impact of land management and biological processes.
British Potato Council	Developing effective integrated control measures for the control of black dot.
British Potato Council	Improving decision-making for the management of potato disease using real-time predictive diagnostics.
British Potato Council	Independent variety trials.
Commercial	Brassica breeding.
Commercial	Potato breeding.
Commercial	Molecular pathology.
Commercial	Blackcurrant breeding.
Commercial	Lipid analysis.
Defra	Prediction, sampling and management of GM impurities in fields and harvested yields of oilseed rape.
Defra	Monitoring the occurrence of GM oilseed rape volunteers in subsequent oilseed rape crops.
Defra	Factors affecting cross-pollination in maize and oilseed rape crops growing under typical UK conditions.
Defra	Molecular virology.
Defra	Crop physiology.
Defra/HGCA	GREENGRAIN: Genetic reduction of energy use and emissions of nitrogen in cereal production (LINK).
Defra/SEERAD	Molecular breeding for root-rot resistant raspberries suitable for low input growing systems (HortLINK).
EPSRC	Novel approaches to networks of interacting autonomes.
EPSRC/University of Dundee	A functional geotechnical study of how plant roots increase slope stability.

EU	ECOGEN: Soil ecological and economic evaluation of genetically modified crops.
EU	TREESNIPs: Developing single nucleotide polymorphism (SNP) markers for adaptive variation in forest trees.
EU	MABDE: Mapping adaptation of barley to drought environments.
EU	APOPHYS: Developing a physical and functional map of potato: creating new sources for molecular markers to breed cultivars with multiple resistance and quality traits.
EU	Potato late blight network for Europe.
EU	NOFORISK: Quantitative risk assessment strategies for novel foods.
EU	ALARM project.
EU	SIGMEA: Sustainable introduction of GM crops into European agriculture.
EU	SAFEFOODS: Promoting food safety through a new integrated risk analysis approach for foods.
EU	BIOEXPLOIT: Exploitation of natural plant biodiversity for the pesticide-free production of food.
EU Marie Curie	Training site in plant virology.
EU Marie Curie Fellowship	Comparative proteomics of Arabidopsis and human nucleoli.
EU Northern Periphery	NORTHBERRY II: Domestication of northern berries.
Gatsby Charitable Foundation	Functional genomics of plant cell organelles – a novel approach using viral vectors.
HDC/SEERAD/Commercial	The breeding and commercial development of new raspberry varieties.
Royal Society	Molecular characterisation of a plant caspase.
Royal Society	Fundamental biophysical processes in the restoration of severely degraded soil by vegetation.
Royal Society	Involvement of the nucleolus in plant virus systemic infection.
Scottish Enterprise	Proof of Concept - Genetic fingerprinting for environmental monitoring.
Scottish Enterprise	Proof of Concept Plus – Vira-Tech: A platform technology for the safe biological assessment of pesticides.
Scottish Enterprise Tayside	Control of potato tuber dormancy using gibberellin biosynthesis inhibitors and the development of molecular markers for tuber dormancy.
Scottish Enterprise Tayside	New system and methods for <i>Agrobacterium</i> -mediated gene transfer: protection from plant caspase.
SEERAD Biodiversity Action Grants	The living field study centre.
SEERAD/BBSRC/GSK/HDC	Development of the physiological, agronomical and genetic tools for increasing L-ascorbic acid yield from blackcurrant bushes (HortLINK).
SEERAD/BPC/Commercial	Understanding and improving flavour characteristics of potato (LINK).
SHEFC	Scottish Bioinformatics Research Network (SBRN) maximising bioinformatics infrastructure for Scottish Health, Agriculture and Industry