3 June 2022

J Bruning
Email: fyi-request-19296-e49700fe@requests.fyi.org.nz

Dear Sir/Madam

Re: Official Information Act Request (PFR Ref: 0936.2.1.05.22)

Further to your request for information under the Official Information Act 1982 regarding Plant & Food Research's protocols on projects employing regulated gene biotechnologies, I am able to provide you with the following information.

1. List of projects undertaken from August 2019 – August 2021 that have received approval under the HSNO Act sections 38-42

   Appendix One includes a list of all HSNO approvals involving gene biotechnologies that were in active use between August 2019 and August 2021. Each approval may be applied to multiple projects.

   Should you require more detailed information about the individual projects undertaken, there is a substantial amount of work that would be required to research and collate the information and we would be required to charge for making the requested information available. Please let us know if you would like us to estimate the cost involved in this process.

2. List of projects undertaken from August 2019 – August 2021 that have been denied approval under the HSNO Act sections 38-42

   Plant & Food Research conducts research in accordance with relevant laws and regulatory guidelines. As such, no research was undertaken that required but did not receive approval.

I trust this reply serves to meet your request. You have the right to refer this reply to the Ombudsman.

Yours sincerely,

Emma Timewell
Communications Manager

Appendix One: List of HSNO approvals in active use at Plant & Food Research

Approval Number	Project
ERMA200947	To develop genetically modified model laboratory organisms and selected crop plants to understand plant secondary metabolite pathways and their influence on plant agronomic and quality traits.
APP201459	To develop genetically modified horticultural and vegetable crops to understand the factors controlling plant development.
ERMA200706	To develop Arabidopsis thaliana in containment to investigate gene function and gene delivery systems, to develop new bioassays.
APP201995	To develop genetically modified organisms (microorganisms and plants) in containment to understand environmental and genetic factors that control the accumulation of alkaloid compounds in plant species, and the role of alkaloids in plant health and development.
GM005/HRA095	To develop and utilise antibody based technology to study plant protein-protein interactions and identify proteins that associate with each other in planta.
GMO01/HRA050	Production of DNA libraries and clones in order to identify natural resistance genes from fruits which are active against economically important pests and pathogens of fruit species and to develop DNA markers for these species
GMD00300	Determination of plant gene function from ESTs and genomic clones, characterisation of regulatory elements controlling plant gene expression and the development of new plant varieties.
APP203321	To genetically modify bacterial, fungal and plant species to analyse the virulence of plant-pathogenic fungi.
APP202231	To develop a range of genetically modified (GM) organisms (microorganisms and plants), and pathogenicity test GM Pseudomonas species on plants in containment to understand the evolution and pathogenicity of Pseudomonas syringae pathovar actinidae (Psa) and plant defences against pathogens
GMC04015	To import genetically modified non-pathogenic Escherichia coli, bacteriophage, and yeast strains, and insect and mammalian cell lines for storage and use in research or diagnostics
ERMA200935	To import genetically modified non-pathogenic Bacillus subtilis, Agrobacterium tumefaciens and Autographa californica multiple nucleopolyhedrosis virus (AcMNPV) and non-replicative Sendai virus vectors for storage and use in research and diagnostics.
GMD03009	To develop in containment a range of genetically modified organisms (GMO) (microorganisms and plants) by introducing well-defined genes from mammals (excluding humans), insects, fungi, plants, bacteria or viruses into plants (non-native species)
APP201049	To genetically modify bacteria and plants to understand how plants and plant viruses interact during infection.
GMD7041	To analyse genes and regulatory sequences from various insects or plants to determine their functions in developmental or biochemical processes such as insect growth and behaviour or in plant development and physiology
NOC99011	To import into containment, for research purposes, genetically modified Saccharomyces cerevisiae laboratory strains that contain fragments of DNA cloned from other species
APP203565	To develop, by genetic modification, microorganisms and plant host species to explore the function of plant genes which encode proteins containing domains specifically rich in glutamine (Q) and asparagine (N) amino acids, also known as Q/N rich regions.
ERMA200073	To investigate the genetic mechanisms involved in persistence and survival of food-borne pathogens to improve food safety

GMC04015	To import genetically modified non-pathogenic Escherichia coli, bacteriophage, and yeast strains, and insect and mammalian cell lines for storage and use in research or diagnostics
GMO00/HRA037	Determination of plant gene function from ESTs and genomic clones, characterisation of regulatory elements controlling plant gene expression and the development of new plant varieties
GMO01/HRA053	Determination of plant gene function from EST's and genomic clones, characterisation of regulatory elements controlling plant gene expression of new plant varieties. Update expands the source of cDNA, genes and regulatory elements from the Actinidia genes
APP203195	To develop plasmids and replication-defective viral vectors in order to transform low-risk yeast, insect and mammalian cell lines for protein production, cell-based functional assays, and in vitro models to study plant and Hexapoda developmental and biochemical processes.
APP201205	To develop genetically modified Saccharomyces cerevisiae (bakers yeast) and Escherichia coli as a model system to study the function of genes. Discovery Science Pl2-1
APP201049	To develop genetically modified plants and bacteria to understand the mechanistic interaction between plants and plant viruses
APP201315	To develop genetically modified Escherichia coli, yeast and animal cell lines for cell-based assays and in vitro models to study the broad physiological interactions of food and food-based components on the human body.
GMD05082	To better understand the biochemical change that mammalian cell undergo in the presence of a variety of foods or a food component
GMD07041	The aim of the research is to analyse genes and regulatory sequences from various insects or plants to determine their functions in developmental or biochemical processes such as insect growth and behaviour or in plant development and physiology
GMO99/HRA015	To express proteins encoded by genes from invertebrates involved in pheromone production and reception, insecticide resistance, host resistance and haemolymph function.
GMO00/HRA027	Amendment to previously approved application, GMO99/HRA019. Escherichia coli. To clone genes from insects involved in pheromone production and reception, insecticide resistance and host resistance. Additional hosts and vectors to be used.
GMO99/HRA019	To clone genes from insects involved in pheromone production and reception, insecticide resistance and host resistance.
GMO01/HRA047	To clone genes from insects involved in pheromone production and reception, insecticide resistance and host resistance. Update of GMO99/HRA019 and GMO00/HRA027.
GMD08037	To develop genetically modified non-pathogenic strains of Escherichia coli and bacteriophage in order to answer identification, taxonomic, population or evolutionary questions for a wide range of genes and organisms
GMO01/HRA051	To examine genes involved in olfaction processes (odorant transport, reception, recognition and neuronal messaging) in vertebrates to define the determinants for odorant specificity and olfaction phenotype.
GMO04/HRA083	Import organisms to understand the response in plants to virus infection by studying the mechanistic interplay between the gene silencing, intron splicing and/or translation pathways, in plants using reporter genes to indicate the efficiencies of each pathway
ERMA200704	To determine the function of plant genes and regulatory elements involved in growth, development, stress physiology, primary and secondary metabolism, symbiotic relationship, flowering, animal nutrition, digestion and health
NOC99015	To gain approval in accordance with section 259 of the HSNO Act 1996 for microorganisms currently held in containment and to allow further importations for reference and research purposes

NOC99014	To gain approval in accordance with section 259 of the HSNO Act 1996 for the International Collection of Microorganisms from Plants (ICMP) for use as reference organisms for rapid responses in eradication.
APP202231	To develop a range of genetically modified (GM) organisms (microorganisms and plants), and pathogenicity test GM Pseudomonas species on plants in containment to understand the evolution and pathogenicity of Pseudomonas syringae pathovar actinidae (Psa) and plant defences against pathogens.
GMD05100	To develop and utilise antibody based technology to study plant protein - protein interaction and identify the proteins that associate with each other in Planta.
GMD01178	Construction of libraries of plant genes for subsequent sequencing and further biological analysis. This is an update of GMO00/HRA036.
GMD09001	To gain an understanding of the molecular basis for the phenomenon of vegetative incompatibility in filamentous fungi
GMD08037	To develop genetically modified non-pathogenic strains of Escherichia coli and bacteriophage in order to answer identification, taxonomic, population or evolutionary questions for a wide range of genes and organisms.
GMD05022	To develop plants with modified pigment pathways to be used in research on understanding plant pigment biosynthesis and accumulation and potentially to generate new varieties of crop plants with modified colour, health or nutritional properties.
GMD01023	Understand the biosynthesis, regulation and function of plant pigments; flavonoids and carotenoids, where new knowledge may contribute to studies of a range of plant processes in which these compounds are key.
GMD01075	Understand the biosynthesis, regulation and function of plant pigments; flavonoids and carotenoids, where new knowledge may contribute to studies of a range of plant processes in which these compounds are key.
ERMA200814	To develop genetically modified non-pathogenic bacteria with genes involved in carbohydrate degradation and transportation to identify how bacteria metabolise carbohydrate-based substrates and how this may impact on human health.
APP202127	To develop in containment Marchantia polymorpha to investigate the evolution of flavonoids and other secondary metabolites in land plants.
ERMA200792	To import genetically modified Arabidopsis thaliana into containment to investigate gene function and gene delivery systems, to develop new bioassays.
ERMA200271	To develop in containment viral vectors and non-germline modified plants that will be used to determine the function of genes associated with plant pigmentation.
ERMA200272	To develop in containment viral vectors and non-germline modified plants that will be used to determine the function of genes associated with plant senescence.
GMC00012	To import into containment Escherichia coli K12 and B derivatives containing fragments of DNA that have been cloned from other species.
GMD08037	To develop genetically modified non-pathogenic strains of E. coli and bacteriophage in order to answer identification, taxonomic, population or evolutionary questions for a wide range of genes and organisms.
GMD05021	To develop plants with modified patterns of senescence, specifically relating to carbohydrate metabolism, senescence signalling or programmed cell death, for research on understanding and potentially controlling deterioration in harvested produce.

NOC04017	To import plant material infected with phytoplasmas to test the effectiveness of current detection methods for identifying phytoplasmas in plant imports
NOC01004	To import into containment plant viruses and viroids capable of mechanical transmission (in an 'inactive' state) for disease diagnostic tests on plant quarantine and surveillance samples
APP203967	To use plasmid based immortalisation factors to create continuous cell lines from various tissues from Oncorhynchus tshawytscha (Chinook salmon).
APP201869	To import a genetically modified bacterium that will be used in a laboratory based bio-assay to determine how much carbon is immediately available for bacterial metabolism
GMC08008	To import genetically modified strains of Pseudomonas corrugata, Pseudomonas syringae and pectolytic Erwinia to investigate the molecular basis for their pathogenicity on plants
APP201858	To import into contaiment low-risk microorganisms and cell lines, vertebrate laboratory animals, and invertebrates for research and teaching purposes
GMO07/CFR001	To develop in containment bacteria with modified pathogenicity and antagonistic traits for use in research on systemic resistance in plants as well as products with antimicrobial properties. Transposon mutagenesis of Pseudomonas corrugata and Pseudomonas syringae for the identification of genes encoding proteins involved in eliciting systemic resistance in plants as well as products with antimicrobial properties
GMD01005	Experimental research to enhance the genetic improvement of potatoes & related species
GMD03053	Experimental research to enhance the genetic improvement of potatoes & related species
GMD09005	To develop in containment plants with modified carotenoid biosynthetic and accumulation patterns. The plants will be used to study carotenoid formation and to potentially generate new cultivars with modified colour, health or nutritional properties
GMD02040	To identify & evaluate genes that control the asexual formation of seeds in the model plant Hieracium (syn. Pilosella). An update of GMO00/CFR004.
GMD00113	Apomixis in Hieracium
GMD00160	To improve disease resistance of peas and beans and thus minimise the requirements for insecticides (to control insect vectors of viruses) & fungicides and to better understand the role of endogenous genes in disease resistance and determinants of yield.
GMD03051	To use amino acid and sucrose transporter genes from peas, beans and yeast and the AAP1 (amino acid permease) promoter from Arabidopsis. An update of GMO00/CFR006.
GMC00001	To maintain in containment and to import strains of genetically modified *E. coli* and *Agrobacterium* which are used to facilitate the introduction of foreign DNA into a wide range of crop species

Note that ‘inactive’ HSNO approvals have been listed in various project registers, however cultures may be present in storage. These HSNO approvals are not listed.