

*Output Class 4: Alternative Animal Species, Animal Products and Systems*

- a Product diversification through new animal species or animal products including the introduction, evaluation, production, market assessment and industry infrastructure requirements; identification of limitations to production and integration into existing systems.
- b The investigation of protocols and development of pest and disease control strategies for alternative animal species or new products from existing alternative species.
- c The nutritional, physiological and genetic bases for, and manipulation of, reproduction to enhance the rate of increase in numbers and desired genetic traits of new animal species.
- d The comparison of the nutrition, physiology, and animal health requirements of alternative animal species against existing animals, using the knowledge to develop techniques for manipulating the productive parameters of both classes of animal.

*Output Class 5: Generic Animals and Animal Production Systems*

- a The physiological and genetic bases of ruminant digestive processes and their manipulation, to improve efficiency of feed intake and utilisation, animal health and quality of animal products.
- b The physiological, genetic, aetiological, pathological and epidemiological bases for the control of pan ruminant species pests and diseases; emphasising those of particular or unique importance to New Zealand, including their impact on the health of New Zealand citizens and the acceptability of animal products.
- c Ruminant reproduction and methods of manipulation that enhance the rate of dissemination and genetic gain of productivity related traits; including the development of integrated systems for the genetic improvement of animals incorporating genetic typing and phenotypic performance, emphasising aspects and traits that will enhance overseas earnings.
- d The physiological, genetic and behavioural bases of animal stress and welfare in relation to livestock management, and its impact on animal productivity and product quality.
- e The development of integrated animal production systems which are biologically and physically sustainable, minimise adverse effects on the environment and maximise quality/consumer acceptance of animal products.

*Output Class 6: Forages and Forage Management Practices*

- a The physiological, ecological and genetic bases for, and manipulation of, forage plants for ruminants; emphasising methods of manipulation of plant genetic traits that improve efficiency of foraging strategy, utilisation, intake and the consequent quality of animal products.
- b The physiological, ecological and genetic bases for weed, pest and disease control; emphasising genetic, biological and integrated control solutions that are environmentally compatible and produce residue free products.
- c The development of environmentally compatible methods of improvement and protection of the pastoral soil resource and nutrient status, to promote sustainable forage growth, forage quality, animal performance and health.
- d The ecological bases of forage production systems particularly in stressed environments; emphasising biologically and physically sustainable management strategies.
- e The physiological, ecological and genetic bases for, and manipulation of, forage plant development and growth; emphasising responses to climatic stresses.

*Output Class 7: Horticultural Crops and Management Practices*

- a Product differentiation by development of fruit and vegetable products and food ingredients through genetic means; emphasising consumer needs for high quality fresh or processed products which give New Zealand industry a competitive advantage.
- b The physiological, ecological and genetic bases for pre-harvest weed, pest and disease prediction, prevention, resistance and management; emphasising genetic, biological and integrated control solutions and areas that impact on overseas earnings.
- c Product diversification by the introduction, evaluation, production and market assessment of new crops which provide new export opportunities for New Zealand.
- d The physiological and genetic bases of pre-harvest fruit and vegetable plant growth and development, and interactions with the environment; emphasising processes which influence yield stability and product quality.
- e The development of horticultural and vegetable production systems which are biologically and physically sustainable, minimise adverse effects on the environment and maximise quality/consumer acceptance of products.

*Output Class 8: Arable Crops, Other Plants and Management Practices*

- a The physiological, ecological and genetic bases for weed, pest and disease prediction, prevention, resistance and management; emphasising genetic, biological and integrated control solutions which impact on overseas earnings and environmental and health issues.
- b The development, through genetic manipulation, of plants with new characteristics that provide novel and distinctive quality products for domestic and overseas markets.
- c The development, evaluation and management of plants suitable for soil conservation and land rehabilitation in depleted and degraded lands; emphasising multipurpose utilisation options and sustainable management.
- d The physiological, ecological and genetic bases of plant growth and development, and interactions with the climate and within stressed environments; emphasising processes which influence yield stability and/or product quality.
- e The development of environmentally sustainable methods for improvement and protection of the soil resource and its nutrient status; including land use diversification through the introduction and production of new plants and their products for domestic and international markets.

*Output Class 9: Trees and Plantation Management Systems*

- a The physiological, ecological and genetic bases for weed, pest and disease prediction, management and prevention of particular or unique importance to plantation forestry; emphasising genetic, biological and integrated control solutions.
- b The impacts of plantation forestry on the on-site and off-site environment; emphasising harvesting impacts and sustainable land management.
- c The nutritional, physiological and genetic bases for, and manipulation of, tree and wood characteristics, including propagation and early tree growth; emphasising aspects that enhance overseas earnings through meeting the needs of the processing sector and consumers.
- d The assessment of targeted special purpose tree species, and species alternative to radiata pine, to meet market needs.
- e The understanding of human and social factors that impact on the recruitment, skill base and retention of people in forestry; emphasising harvesting needs.