



# Agricultural Innovation

Sustainable strategies to feed an increasing global population

“Every problem is an opportunity in waiting.”

Food production has increased by more than 300 per cent since the advent of the Green Revolution in the 1940s. Nature has productive limits so it has been necessary to develop alternative but complementary strategies to feed the world's increasing population. The innovative technologies that produce alternative foods require natural resources that are renewable and sustainable.

The Agricultural Innovation programme is designed to develop future leaders in agriculture. The focus is on science and technology, but you will also gain an understanding and appreciation for agriculture in broader contexts including economic, social, cultural and environmental aspects.

Government projections are that there will be 50,000 additional skilled jobs generated within the agricultural sector by 2050. Agricultural Innovation has been developed to produce graduates with specialist but diverse skills for a career in agriculture or the rural sector.

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## Why study Agricultural Innovation?

Agricultural Innovation focuses on the major issues in agriculture that impact food production, security, safety and quality. The programme will explore the innovative changes in agriculture required to mitigate the impact of extreme weather events, greenhouse gas emissions, and degradation of soil and water quality. Teaching will focus on the agricultural and industrial processes that drive food production systems necessary to guarantee food security in a world with ever increasing demands for food.

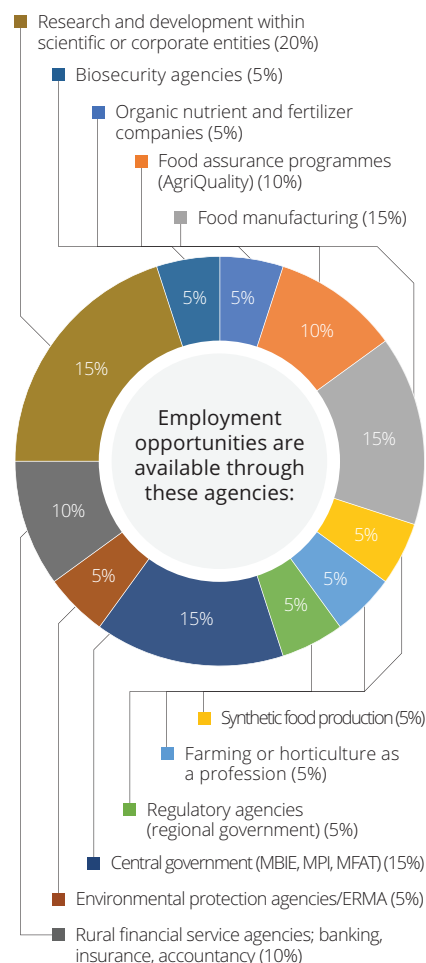
You will learn how innovation is used to advance economic, societal and ethical goals, such as increasing the monetary and nutritional value of food while reducing the negative environmental impacts. Māori perspectives relating to agriculture and the importance of Māori throughout the primary sector will be woven into the fabric of the course, providing students with an ethical framework and guidelines for engagement.

## Background required

Entry into the Bachelor of Applied Science (BAppSc) in Agricultural Innovation is open to anyone with University Entrance. During the first year at university you will be required to take 100-level papers in Agricultural Innovation, Biology and Chemistry. Taking Year 13 NCEA papers in Agricultural and Horticultural Science, Agribusiness, Biology and Chemistry, before entering university will be helpful. While Agribusiness is only available at a small number of secondary schools it is anticipated it will be available in the majority of schools in the immediate future. During your first year at university it is important to consider registering for other papers that are required to obtain a second major or minor in: Business, Economics, Marketing, Biological, Environmental, Physical or Social Sciences.

## Career opportunities

After graduating with a BAppSc in Agricultural Innovation you will have the expertise to enable employment in the agricultural and food sector.



## Can I combine Agricultural Innovation with other subjects?

Yes, this is a requirement for all Bachelor of Applied Science graduates. Because Agricultural Innovation is a major for the BAppSc, you will need a minor or a second major in a related approved subject area. This will add considerable scope to your training and learning, and you will be trained in diverse specialities relating to agriculture or food production. There are a large number of subject areas to choose from in Applied Science, Arts and Music, Science, as well as all Commerce subjects.

## What will I learn?

The new major and minor in Agricultural Innovation are designed to capitalise on the extensive academic and research expertise in agriculture, food and the environment at the University of Otago. The teaching programme is primarily science-focused but also incorporates social, environmental, and economic aspects of agriculture, including traditional and contemporary Māori agriculture and mātauranga Māori.

It provides a coherent and thorough introduction to Agricultural Innovation that accentuates multidisciplinary problem-solving, critical thinking, independence, self-directed learning, and communication skills.

Increased breadth is developed through optional papers, from multiple specialities, linked to study of the natural world, human world, and technical world.

## How will I study?

There are a wide variety of delivery methods, including lectures, tutorials, computer and scientific laboratory work, directed readings, and field work. Each year you will visit a farm that is an exemplar of all that is best in agricultural production of sustainable, healthy food.



### FIRST YEAR

#### AGRI 101 Agricultural Innovation

Current global issues and solutions in agriculture and food production, including social, commercial, and environmental aspects, and the role of science and technology for driving innovation.

### SECOND YEAR

#### AGRI 221 New Zealand Agricultural Systems

A survey of New Zealand's leadership role in agriculture, including farm types, financial models, and agricultural science and technology, and the social and environmental imperatives that result.

### THIRD YEAR

#### AGRI 321 Agricultural Production and Food Security

Biosecurity, animal health and wellbeing, food integrity, provenance, appellation and branding, nutritional and medicinal properties of food.

#### AGRI 322 Innovation and Healthy Soils

Building healthy and valuable soil, including soil microbiome, carbon sequestration, water retention, sustainable production; biological, chemical, and physical aspects of soil; soil regeneration.

#### AGRI 323 Agricultural Genetics and Breeding

Achieving genetic improvement in agriculture; underlying principles and applications, with reference to New Zealand animal and plant examples. Advances in genetic and associated technologies; innovation and commercialisation.

For questions about  
Agricultural Innovation  
[otago.ac.nz/agriculture](http://otago.ac.nz/agriculture)