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(Galbreath, R., 2009a)

## Story: Agricultural and horticultural research Page 2 – Organising agricultural science

Professional scientific research to aid agriculture and horticulture gradually developed – some of it in universities, private organisations or companies, but most in government institutions.

### Colonial Laboratory

New Zealand's first government scientific institutions, in the 1860s, were primarily geological, aimed at finding mineral wealth. The Colonial Laboratory, which normally analysed mineral samples, did a few soil analyses 'by direction of the Government for the information of practical agriculturalists'<sup>1</sup>, but there was little other scientific assistance for farmers in the 19th century.

### Department of Agriculture

A more scientific approach to helping farmers began when the Department of Agriculture was set up in 1892, amalgamating the stock and agricultural branches of the Department of Crown Lands.

A biologist, Thomas Kirk, was appointed to give advice on insect pests of orchards and crops. He also began efforts in biological control – importing insect predators or parasites to attack pest insects.

An agricultural chemist, Bernard Aston, was employed to analyse soil samples and make recommendations on fertiliser use. Aston worked on identifying the cause of 'bush sickness,' a wasting disease that afflicted sheep and cattle in large areas of the central North Island, and also on trials of chemical fertilisers.

### Phosphate fertiliser

These trials helped convince New Zealand farmers of the value of phosphate fertiliser. They also convinced the Prime Minister William Massey, a farmer himself. In the negotiations over who would gain control of various German possessions after the First World War, Massey put his main effort into gaining a share of Nauru Island's phosphate rock for New Zealand. He succeeded, and until Nauru's independence in the 1960s New Zealand farmers got cheap rock phosphate for making superphosphate.

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Department of Scientific and Industrial Research established



Wallaceville fertiliser experiments



Hop stringing at Riwaka Hop Research Station (1st of 3)



The Cheddar master



Crossing wheat at the Wheat Research Institute

### Universal super

The invention of superphosphate fertiliser in England in 1843, and the establishment of fertiliser manufacturing works in New Zealand, were important steps in the development of agriculture and horticulture. The basic soil fertility developed under tussock and bush was not enough to sustain pasture and crop growth. Superphosphate provided much-needed extra phosphate, and other elements could be added where required.

### DSIR

In 1926, after pressure from scientists – including the celebrated Lord Rutherford – and a recommendation from a visiting British expert, the government established a new Department of Scientific and Industrial Research (DSIR). It copied the structure and the name of the British DSIR, but whereas in Britain 'industrial' meant manufacturing industry, the New Zealand agency was expected to focus on primary industries, especially agriculture.

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## Research associations and institutes

The DSIR initially coordinated research in existing institutions or in new British-style research associations, partly funded by the industries concerned. The first research associations were a Dairy Research Institute (1927) and a Wheat Research Institute (1928), which soon made important contributions to their industries.

They were later followed by the New Zealand Wool Industries Research Institute (1937), the Tobacco Research Station at Motueka (1938), the New Zealand Fertiliser Manufacturers' Research Association (1947) and the Hop Research Station at Riwaka (1949). The Meat Industry Research Institute was incorporated in 1955

### *Dairy Research Institute*

In the late 1920s and 1930s the Dairy Research Institute investigated problems in cheesemaking and found they were caused by bacteriophages – viruses attacking the bacteria used in cheesemaking. The institute developed clean bacterial cultures which avoided the problem and raised the standard of New Zealand cheeses.

### *Wheat Research Institute*

The Wheat Research Institute bred the new wheat varieties Cross 7 in 1934, and Hilgendorf in 1947, as well as several others. These provided higher yields and better flour. New Zealand does not have a suitable climate for growing really high-quality wheat, so the new varieties greatly improved the standard of New Zealand bread.

#### Footnotes:

1. *Appendices to the Journals of the House of Representatives*, 1868 D-14, p. 19. >

#### How to cite this page:

Ross Galbreath. 'Agricultural and horticultural research - Organising agricultural science', Te Ara - the Encyclopedia of New Zealand, updated 1-Mar-09  
URL: <http://www.TeAra.govt.nz/en/agricultural-and-horticultural-research/2>

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