

# Potato Yield Gap Project

## Year 1 research

In the first year of this project a number of factors were identified that are believed to have led to reduced potato yields.

- Seed- or soil-borne diseases, in particular Rhizoctonia stem canker and Spongospora root infection were prevalent in the crops. These diseases may have reduced yields by restricting water uptake in the plants and causing premature canopy death.
- Soil compaction also reduced soil water-holding capacity and root growth.
- The highest yields were found in crops with low Rhizoctonia, no Spongospora and no compaction.
- The lowest yields were found in crops with all of these conditions present.

These findings are summarised in the [Potato Yield Gap Project Booklet \(PDF\)](#), and full details can be found in the Plant & Food research reports:

- [Potato yield gap investigation 2012–13. Part A: Factors limiting yield \(PDF\)](#)
- [Potato Yield Gap investigation 2012–13. Part B: Effect of nutrient supply on yield \(PDF\)](#)

In November 2013 the Australasian Plant Pathology Society held a workshop on Potato Diseases in Auckland. Many of the presentations focus on the soil borne diseases that are being investigated in the yield gap study, as well as other topics including potato cyst nematode and the tomato potato psyllid. These presentations can be found in the Archived reports section of [www.potatoesnz.co.nz](http://www.potatoesnz.co.nz).

## Year 2 research

A trial funded by Plant & Food Research Core Funding looked at three main topics:

- Quantifying the effect of soil-borne diseases on potato growth and yield through a replicated trial evaluating 5 pesticide treatments to examine their efficacy against soil-borne diseases and to more accurately quantify the loss associated with each of these diseases.
- Assessing regional variability in Rhizoctonia solani isolates affecting potato production to obtain a comprehensive assessment of the losses caused by this pathogen in potato production.
- Role of seed quality in potato emergence, variability and yield.