



Jesse M. Rubenstein
Bio-Protection Research Centre (Lincoln University)
jesse.rubenstein@lincolnuni.ac.nz

Jesse is in his second year of his PhD under the supervision of John Hampton from the Bio-Protection Research Centre at Lincoln University, and co-supervisors Philip Hulme and Phil Rolston. His project focuses on agriculture weeds that impact seed for sowing imports and exports in New Zealand. Additionally, he is looking at how diversity and contamination rates of weeds found in forage and vegetable crop seeds that originated within New Zealand paddocks have changed over the last 100 years.

His most recent work examined the frequency, country of origin and identity of weed seeds found in seed lots (shipments) intercepted at the border from 2014-2018. He has also identified the most contaminated and least contaminated crop seeds commonly imported into New Zealand. Results showed that seed lot contamination was rare, occurring in 1.9% of 41,610 seed lots across 1,420 crop seed species. Among the different crop types, arable crop seeds had the lowest contamination rate (0.5%) and forage crop seeds had the highest (12.6%). Of the commonly imported crop seeds, *Capsicum*, *Phaseolus* and *Solanum* all had contamination rates of 0.0%. Crop seeds *Medicago* (27.3%) and *Trifolium* (19.8%) had the highest contamination rates. Out of 191 genera recorded as contaminants, *Chenopodium* was the most common. Regulated quarantine weeds were the rarest contaminant type, only occurring in 0.06% of seed lots. *Sorghum halpense* was the most common quarantine weed and was found only in vegetable seed lots. Vegetable crop seed lots accounted for approximately half of all quarantine weed detections, *Raphanus sativus* being the most contaminated vegetable crop. Seed lots from Italy had more quarantine weeds than other countries. Low contamination rates suggest industry practices are effective in minimizing contaminant seeds.

The CAWS Student Travel Award will be used to present this work at the New Zealand Plant Protection Society Conference in Napier, New Zealand on 10 - 12 August 2021. Jesse will use this opportunity to meet experts in the field of biosecurity and plant protection, and disseminate/gain valuable feedback on his own weed research.