

The distribution of nursery grown plants is a well recognised means for pests to be spread, both internationally and within a country. Pests are readily spread with nursery stock to new environments and ecosystems (Brasier 2008, Santini et al 2013, Jung et al 2015).

## A New Zealand perspective

On three occasions in 2004 and 2005, several nurseries and a plant transporter cooperated with Lincoln scientist to understand what, if any, pests were associated with plants shipped through New Zealand. Samples were taken from the litter on top of plant containers and from the deck of trucks carrying potted shrubs and bagged or bare rooted trees. Foliage was not inspected or sampled, nor was the potting mix from the plant's containers.

### What they found

On all three occasions, large numbers of **arthropod insects** were found in the samples. Mites and springtails were the most common, but spiders, millipedes, weevils, aphids, scales, ants, fungus gnats, moths, bark lice and thrips were also present.

On one occasion samples were assessed for the presence of **nematodes**. Species from five families or genera were identified. Some are recognised as injurious to plants, and capable of vectoring viruses.

**Weed seeds** were assessed from one collection period. Seeds from 30 plant species were identified. Bittercress, a common nursery weed was common, as was the grass Poa. For 43% of the species though, only a single seed was found.

### Key messages

These pests resulted from the plant stock being shipped from commercial nurseries to their customers, illustrating the risks associated with the nursery stock pathway, the threat to other plant producers and plant buyers, and the potential to spread pests (both new and existing) into the wider environment. The need for rigorous hygiene during plant transport is reinforced through this work.



Cardamine hirsute – hairy bittercress

Photo credit - [Rasbak](#) – CC BY-SA 3.0 – Wikipedia

## Sources & more information

- McNeill et al 2006 - Potential spread of pests in New Zealand through commercial transport of nursery plants, New Zealand Plant Protection 59:75-79 (2006)
- Brasier 2008, Brasier, C.M. 2008. The biosecurity threat to the UK and global environment from international trade in plants. Plant Pathology 57(5):792-808.
- Jung et al 2015, Jung et al 2015 - Widespread Phytophthora infestations in European nurseries put forest, semi-natural and horticultural ecosystems at high risk of Phytophthora diseases - Forest Pathology. 46: 134–163.
- Santini et al 2013. Biogeographical patterns and determinants of invasion by forest pathogens in Europe. New Phytologist 197: 238–50.