

Giant willow aphid trials

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On-farm field trials

Field trials on sheep and beef farms in the Hawke's Bay and the Wairarapa regions, have been continued for a second season, to quantify the impact of the giant willow aphid on willow tree survival and growth. The willow trees in the trials have been allocated to sprayed and unsprayed treatments (Figure 1). The willow trees were monitored for aphids from December 2017, and insecticide was applied to the sprayed trees at monthly intervals from January 2018.

The numbers of aphids were very low in December, but increased rapidly on the unsprayed trees during January, February and March (Figure 2). The size of the clusters of aphids on the stems of the unsprayed trees increased during January, February, March and April.

The sprayed trees showed high levels of re-infestation with winged aphids during the one month interval between spraying. The percentage of trees re-infested with winged aphids increased during January, February and March, and then declined in April. The percentage of trees re-infested with winged aphids increased with the age of the trees, which could be attributed to the larger size of the trees.

The monitoring of the aphid populations, and the control of the aphids on the sprayed trees, will continue until the end of June 2018, when the unsprayed and sprayed trees will be assessed for survival and growth.



Figure 1. A pair of unsprayed (left) and sprayed (right) trees in a three year-old stand of willow trees in the Wairarapa. Note the black sooty mould on the stem and branches of the unsprayed tree.

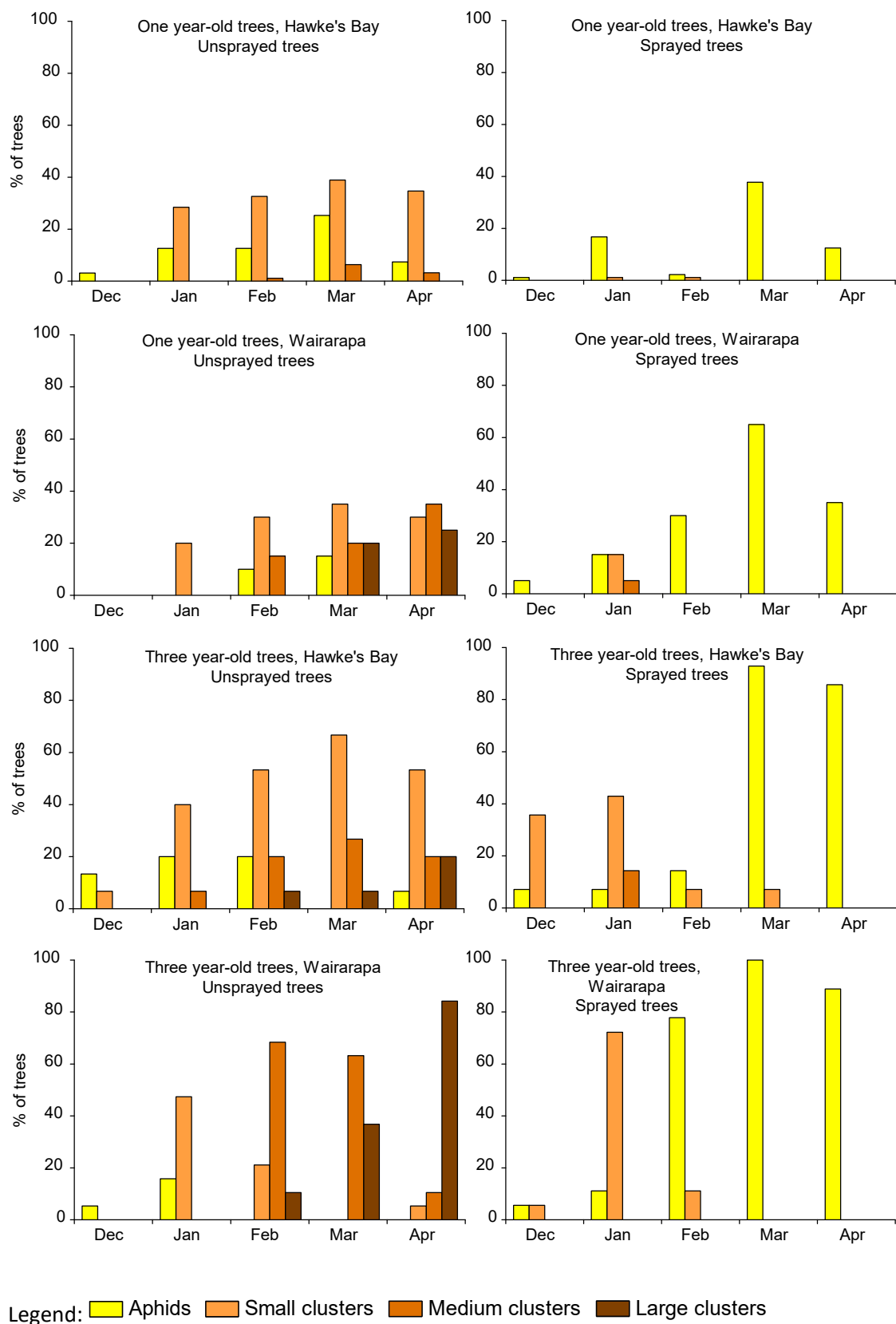


Figure 2. The level of infestation with giant willow aphids of unsprayed and sprayed trees at the Hawke's Bay and Wairarapa trial sites.

Nursery field trial

A nursery field trial of willow trees was planted at Massey University, to look at the effect of the giant willow aphid on the survival and growth of young willow trees (Figure 3). Fifteen tree and shrub willow clones were planted as cuttings in June 2017. These included some commonly planted willows, and Trees for Bees selections of willows for bees. The willow trees in the trial were planted in paired rows, with one row of trees sprayed with insecticide to control the aphids, and the other row of trees inoculated with aphids. The number of aphids on the unsprayed trees was monitored from February 2018.



Figure 3. The nursery field trial for the giant willow aphid at Massey University in April 2018.

The initial results of the aphid monitoring show the numbers of aphids increased rapidly during February and March, and peaked in mid-late April (Figure 4). There was a more rapid increase in aphid numbers on the susceptible willow cultivars, with larger clusters of aphids forming on the stems. The willows that were susceptible to the aphids included: *S. viminalis*, *S. candida*, *S. alba*, *S. matsudana* × *alba*, *S. matsudana*, *S. schwerinii*, *S. x fragilis*, *S. matsudana* × *lasiandra*. The most resistant willows to the aphids in the trial were: *S. eriocephala* and *S. lasiolepis* × *viminalis*. Two early flowering male *S. lasiolepis* × *viminalis* clones with resistance to the aphids, have recently been released to regional council nurseries, so that plants can be made available for planting.

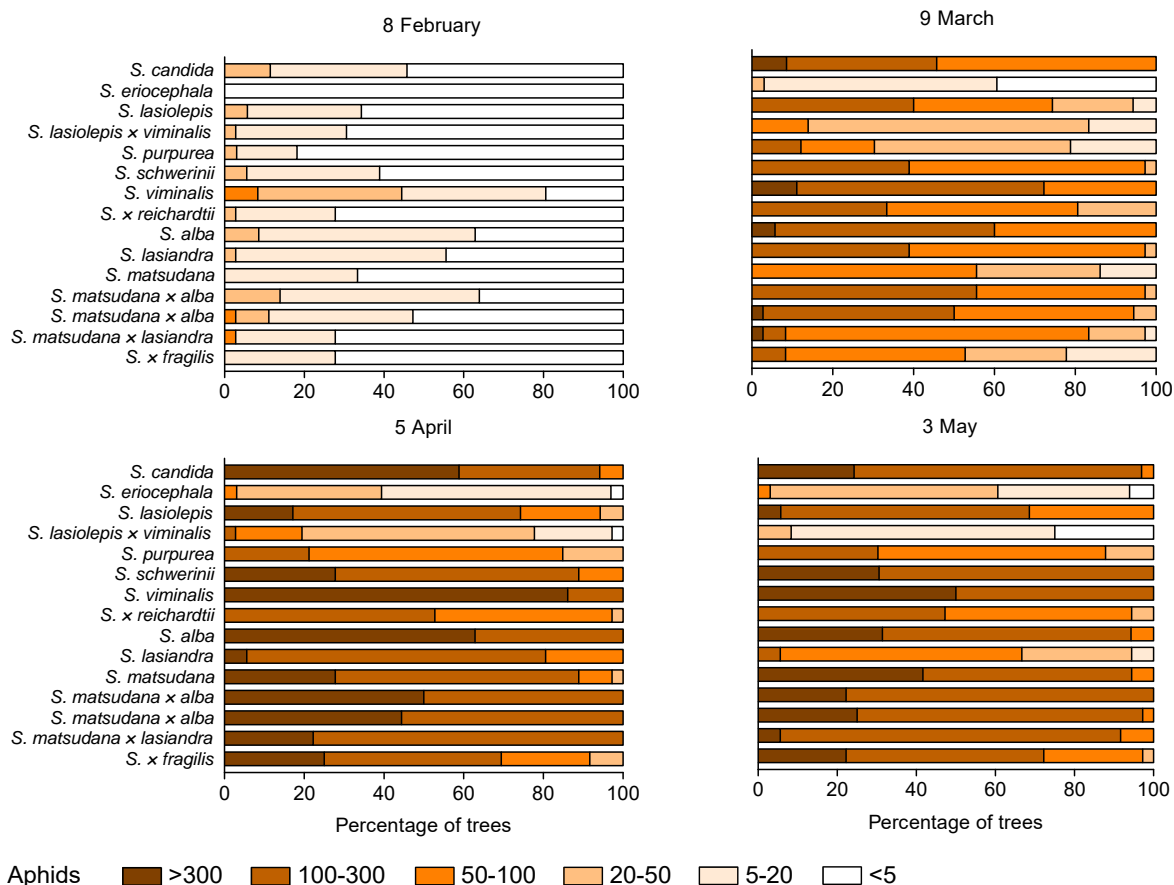


Figure 4. The abundance of giant willow aphids on the willow trees of the different willow species and hybrids, at monthly intervals from February to May 2018.