USING CLOPYRALID FOR CONTROLLING BONESEED (*CHRYSANTHEMOIDES MONILIFERA*) SEEDLINGS

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Boneseed (*Chrysanthemoides monilifera*), a serious coastal conservation weed in New Zealand and Australia, has been present at Taylor's Mistake, a coastal suburb near Christchurch, for at least 25 years and a considerable amount of seed has accumulated in the soil. Mature, established plants were successfully cleared from an area in 2002 by cutting the stems and treating the cut stumps with picloram gel (Vigilant). Seedlings, which continued to emerge throughout the year, were removed by hand once a month until massive germination following autumn rains made this impossible. Glyphosate, commonly recommended for boneseed seedling control, also kills the grass that can itself hinder boneseed germination and establishment. The effects of clopyralid (Versatill) on boneseed seedlings and grass cover was tested in replicated plots and compared with glyphosate-treated and untreated plots. Clopyralid was as effective as glyphosate in killing boneseed seedlings but it did not affect grass cover. The conclusion is that clopyralid is very useful for controlling boneseed seedlings, but further research is needed to investigate the size of plants that it will control, and whether other equally grass-selective herbicides are as effective.

LEAF AREA DYNAMICS OF DEFOLIATED *BUDDLEIA DAVIDII*

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The response of *Buddleia davidii* to defoliation at varying intensities (0% (D_0), 75% (D_{75}) and 100% (D_{100}) in February) and times (40% (D_{40}) in February and April) was examined in a field experiment at Rotorua. Models of cumulative growth and mortality were constructed at the shoot level and scaled up to the plant level to investigate the impact of defoliation on seasonal leaf area dynamics and to determine whether thermal time will provide a sound basis for modelling defoliation. Cumulative leaf area (L_E) exhibited a significant ($P<0.01$) almost linear increase with growing degree days (GDD) for all treatments over both the first period (late summer to mid-autumn) and second period (mid-autumn to early winter). Variation in the slope between GDD and L_E was significantly related to time of the year, defoliation intensity, number of defoliations and the interaction between defoliation intensity and time. The reductions in L_E observed during the first period for D_{75} and D_{100} were not noted during the second period. The second defoliation in the mid-autumn stimulated L_E in D_{40}, relative to D_0. Thermal time provides an analytical framework for determining the effects of leaf removal and time on L_E and also provides a useful means of modelling L_E that can be extended to sites with different climates.