

THE WEED CONTROL VALUE OF LATERAL ROOT SEGMENTATION IN CANADA THISTLE (CIRSIUM ARVENSE). Richard L. Crow and Edward C. Luschei, Research Assistant, Department of Agronomy, University of Wisconsin, Madison, WI 53706 and Professor, Department of Agronomy, University of Wisconsin, Madison, WI 53706.

Canada thistle is a perennial weed capable of clonal spread from root buds, making this weed especially hard to control. Management of this noxious pest involves a 'war of attrition' against stored reserves, in which the importance of clonal interconnectedness is not well understood. In order to investigate the impact of altering clonal connectedness, we randomly applied four treatments to Canada thistle plants growing in 52 x 26 x 6 cm flats in a greenhouse. The treatments were: a check, removal of top growth, severing the roots across the center of the flat (narrow way), and a combination of removal of top and severing the roots across the center of the flat. We found that mechanically severing of the lateral roots of a Canada thistle genet resulted in a 57% increase in the number of shoots per unit area, which were thinner and shorter compared to untreated flats (p-value 0.02). The severing of lateral roots seemed to have three important effects on the behavior of the genet: 1. A loss of communication between parts of the clone resulted in an increase in the number of shoots per genet, 2. A reduction in stored root carbohydrate levels per growing shoot, 3. A drop in the average vigor of emerging shoots. The increased number of weaker shoots and increased commitment of storage carbohydrate to regrowth demonstrate the potential of mechanical manipulation of Canada thistle roots as a tactic in low-disturbance attrition-type strategies for control. Investigation on the impact of the strategy in field populations is ongoing.