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## **Effects of late season herbicide applications on the elongation and growth of leafy spurge vegetative buds**

DAVID D. BIESBOER, WILLARD L. KOUKKARI, and BETTINA DARVEAUX

*Department of Plant Biology, University of Minnesota, St. Paul, MN 55108, 612-625-1234*

The present study was performed to investigate the effects of applications in early October of picloram and glyphosate on the elongation of leafy spurge crown buds and on the recovery of treated plants in the field. Preliminary experiments were designed to collect information on crown bud behavior late in the season to serve as a baseline for comparisons to field observations. Field excavation experiments revealed that crown buds were still elongating late in October in Minnesota. Crowns were also harvested from the field in the fall and grown in pots in growth chambers in the laboratory to study bud elongation patterns. Although most buds began to elongate within 3 days, usually only a single bud per crown elongated beyond 20 mm. Crowns treated with picloram (1 lb/acre) and glyphosate (commercial rate) in the field on October 2, 1991 showed reduced bud elongation compared to untreated controls. Picloram was more effective than glyphosate in inhibiting bud elongation. In the field, the picloram treatment resulted in excellent control of leafy spurge into the second year. Although the glyphosate treatment reduced the percent cover of leafy spurge during the spring of 1992, by the summer of 1992, the percent cover was greater than the controls. Picloram and glyphosate solutions applied directly onto crown buds with a brush indicated that picloram could be absorbed directly by the crown buds at levels which could inhibit bud elongation. Apparently, only low levels of glyphosate could be absorbed by the crown buds since a stimulatory effect was observed. Persistence of picloram in soils combined with the ability to be absorbed directly by crown buds may explain why picloram applied late in the season is so effective at controlling leafy spurge.