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Herbicide Effects on Seed Production of Native Wildflowers
Susan R. Winslow, Agronomist

The control of broadleaf weeds is critical in successful establishment and growth of wildflower seed production fields. The traditional approach of hand weeding and mechanical cultivation to reduce resource competition is time consuming and expensive. There are few herbicides labeled for weed control in wildflowers due to a lack of information on the impacts to seed production and stand longevity. A two-phase field study was initiated to examine the effect of pre-and post-emergence herbicide treatments on six native wildflowers. Results in the first phase of six pre-emergence treatments show broadleaf weeds were best controlled in *Dalea candida*, *Liatris punctata*, and *Penstemon eriantherus* with pendimethalin, and in *Phacelia hastata* with prodiamine. Results were inconclusive for *Gaillardia aristata* and *Ratibida columnifera*. The lowest weed densities in the second phase of six post-emergence herbicide treatments were imazapic in *Dalea candida*, pendimethalin in *Gaillardia aristata*, linuron in *Liatris punctata*, and S-metolachlor in *Ratibida columnifera*. Results were inconclusive for *Penstemon eriantherus* and *Phacelia hastata*. For the most part, wildflower densities were not significantly different among treatments, with the exception of *Phacelia hastata*. This may be caused by the short-lived nature of the species rather than impacts associated with herbicide applications. Floral initiation and seed production were extremely variable across species and treatments. These results indicate herbicide effectiveness is species-specific in controlling broadleaf weeds in wildflower seed production fields. This study may provide growers and land managers information on the successful establishment of native wildflowers. As commercial demand continues to increase for native wildflower seed, so does the importance of recognizing the need to continue herbicide research on a variety of additional species.