

ABSINTH WORMWOOD CONTROL PROGRAMS THAT INCLUDE MOWING, FERTILIZATION, OR HERBICIDES. Michael J. Moechnig, Darrell L. Deneke, Jill K. Alms, and David A. Vos, Assistant Professor, IPM Coordinator, Senior Ag Research Technician, and Ag Research Manager, Plant Science Department, South Dakota State University, Brookings, SD 57007.

Absinth wormwood (*Artemisia absinthium*) is a perennial invasive weed that may be found in many northern U.S. states from Kansas to North Dakota and from Oregon to Maine. Previous research has indicated absinth wormwood can reduce pasture grass production by 65%. Absinth wormwood can also invade new native grass/forb plantings. In such situations, non-herbicide control options may be desired to prevent injuring native forb species that are costly to plant. A field study was established from 2007 to 2009 in northeastern South Dakota to evaluate combinations of mowing, fertilizer, and herbicides to control absinth wormwood in a grassland that was planted approximately two years prior to initiation of this study. Grass species primarily included big bluestem, Russian wildrye, sideoats grama, and switchgrass. Treatments included spring mowing, spring and fall mowing, spring and fall mowing with 90 kg/ha N applied in spring, spring and fall mowing with 90 kg/ha N applied in fall, and 2,4-D ester or picloram plus 2,4-D ester applied in spring or in the fall after spring mowing. None of the mowing treatments resulted in noticeable absinth wormwood control after two years of mowing, but several of the herbicide treatments resulted in greater than 94% control the first year after application. The spring application of 2,4-D ester at 2.1 kg ae/ha without mowing resulted in greater control than 2,4-D applied at the same rate in the fall after spring mowing. This may be partially due to grass growth reduction caused by mowing. At two years after mowing, grass shoot biomass in the mowed treatments was 32 to 64% less than that in the most effective herbicide treatment. Grass yield in the untreated treatment was similar to grass yield in the mowed treatments one year after initiation of this study, but on the second year grass yield in the untreated treatment was nearly twice as great as some of the mowed treatments. These results suggested the grass was becoming more competitive with absinth wormwood and absinth wormwood management would be more effective if nothing was done rather than mowing. Conclusions from this study were that mowing or mowing plus fertilization were not effective management options for absinth wormwood after two years but herbicides were effective just one year after application. Perhaps future research regarding non-herbicide control options for absinth wormwood in new grassland plantings should include methods of increasing the competitive ability of grasses.