

TEBUTHIURON: A TOOL FOR TALLGRASS PRAIRIE RESTORATION. Robert A. Masters, Rangeland Scientist, Byron B. Sleugh, Forage Agronomist, Dow AgroSciences LLC, IN 46268, Walter H. Schacht, Rangeland Scientist, and Christopher Kopp, Research Technician, University of Nebraska, Lincoln, NE 68583

Tallgrass prairies once extended over 240 million acres in North America, stretching from Texas into the prairie provinces of Canada. Today, tallgrass prairies are among the most reduced grassland community types in North America. A variety of factors have contributed to their demise including conversion to cropland, management that has promoted invasive by exotic plant species, and urbanization. There are situations in the central and northern Great Plains grasslands where plant species composition has shifted such that introduced cool-season grasses have come to dominate because of management practices that have facilitated the invasion, establishment, and expansion of these exotic grasses. Experiments were conducted to determine if the herbicide, tebuthiuron, could be used to cause a rapid shift in species composition by controlling cool-season grasses and releasing remnant warm-season grasses. Tebuthiuron was applied on degraded grassland sites in southeast Nebraska at rates of 1.1, 2.2, and 3.3 kg active ingredient (ai) ha⁻¹ in the autumn in 2003 and 2004. Plant community attributes measured in mid-summer 2004, 2005, and 2006 included yield of warm-season grasses, cool-season grasses, and forbs. Tebuthiuron, regardless of rate applied, suppressed the cool-season grasses (Kentucky bluegrass smooth brome grass, and cheatgrass). By 260 days after treatment, cool-season grass yields were less than 125 kg ha⁻¹ compared to yields of over 700 kg ha⁻¹ on areas that were not treated with herbicide. In contrast, yield of warm-season grasses (big bluestem and little bluestem) were greater than 3500 kg ha⁻¹ by 260 days after treatment compared to yields of less than 961 kg ha⁻¹ on areas that were not treated with herbicide. This relatively rapid increase in warm-season grass yields appeared to be the result of their release from competition with the cool-season grasses controlled by tebuthiuron. Once released from competition with the cool-season grasses the warm-season grasses were able to more fully express their yield potential.