

LONG-TERM EFFECT OF WEED CONTROL AND CUTTING SYSTEM ON ROUNDUP READY ALFALFA. Andrew Chomas*, Timothy Dietz, James Kells, Wesley Everman and Richard Leep, Research Technician, Research Technician, Professor, Assistant Professor, Professor, Department of Crop and Soil Sciences Michigan State University, East Lansing MI 48864.

Weed control in alfalfa with glyphosate offers growers an alternative weed management system that may enhance alfalfa growth and persistence by providing a wider spectrum of weed control. Glyphosate is an effective herbicide for controlling weed species commonly found in established alfalfa stands. Field research was conducted from 2003-2009 to examine: 1) the effect of cutting systems on stand longevity, and 2) the effect of herbicide and management system on forage composition. The site was established on a Capac loam soil with a pH of 7.4 at the Michigan State University Agronomy Farm in East Lansing, Michigan. Glyphosate resistant alfalfa was planted at a rate of 18 lbs/A at a 6 inch spacing and managed according to commercial production practices in Michigan. Treatments were arranged in a split plot design with cutting frequency as the whole plot factor and herbicide treatment as the sub plot factor. Whole plots were managed either as an intensive management system or as a moderate management system based on number of cuttings in a season. Herbicide treatments consisted of no herbicide applied, glyphosate at 0.75 lb ae/A applied in the fall or spring of the year as needed, or hexazinone at 0.5 lb ai/A applied every other year in the spring. Cuttings were taken each year after establishment at 750 growing degree days base 41° F, starting March 1st with subsequent cuttings at 28 and 35 day intervals for the intensive and moderate management systems, respectively. Dry biomass yield, forage quality and alfalfa population data were collected. Weed and alfalfa dry biomass percentages were calculated from separation data. Forage yield was highest in the second production year and declined subsequently thereafter. The intensive management system resulted in higher yield than the moderate system in 2005-2006, whereas the moderate system resulted in the highest yield in 2009. There were no significant differences among weed control treatments for annual forage yield or weed control from 2004-2009. Stand persistence was not affected by cutting management system or weed control strategy. Very few weeds were present in any of the management plots in 2004. Following weed free establishment the use of herbicides removed weeds, but had no impact on alfalfa yield and did not increase the persistence of the alfalfa stand.