

EFFECT OF GLYPHOSATE RESISTANT ALFALFA SEEDING DENSITY ON FORAGE PRODUCTION AND COMPOSITION. David E. Hillger, Richard H. Leep and James J. Kells, Research Associate and Professors, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824-1325

Current recommendations for alfalfa seeding rates are based on conventional varieties. The introduction of glyphosate resistant alfalfa offers a new management system for establishing alfalfa. Determining optimum seeding rates will provide forage producers with the information to maximize yield, quality, and profitability with this new technology. Multi-year field experiments were conducted to determine the effect of weed control on forage production, forage quality and alfalfa stand establishment at varying seeding rates in glyphosate resistant alfalfa. Seeding rates of 4.5, 9.0, and 17.9 kg ha⁻¹ were evaluated. Weed control methods in the establishment year included: no herbicide, glyphosate applied once before the first harvest, and glyphosate applied before the first harvest and 7 to 10 days following each harvest. Herbicide treatments were not applied after the establishment year. The establishment year results showed no crop injury from glyphosate treatments. In the 2005 establishment year, the greatest differences in alfalfa, weed and total forage yields were observed at the first and second harvests. There were no differences in alfalfa, weed and total forage yields across seeding rates or herbicide treatments at the third and fourth harvests. However in 2006, differences in the alfalfa, weed and total forage were observed due to the seeding rates, the herbicide treatment or both at each harvest. Alfalfa yield increased and weed yield decreased with increased seeding rates. The application of glyphosate significantly increased the alfalfa and total forage yield for the second and third harvest in the 2006 establishment year. The results for the second season of the 2005 establishment study showed no differences in the alfalfa, weed and total forage yields at all harvests. In the 2005 establishment study, the reduction in the number of alfalfa crowns in the fall compared to the spring was significantly greater at the 17.9 kg ha⁻¹ seeding rate than at the lower seeding rates. In 2006, this trend continued but there were no significant differences based on seeding rate.