

EFFECT OF REDUCED HERBICIDE RATES ON WEED CONTROL AND YIELD OF CORN.  
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A study was conducted over a 3-yr period (2003, 2004, and 2005) to evaluate the effect of reduced herbicide rates, 20, 40, 60, 80 and 100% of the manufacturer's recommended rate (MRR) on weed control, environmental impact (EI), yield and profitability of corn in Ontario. The herbicide rate required to provide 90% or greater control of velvetleaf, redroot pigweed, common ragweed, common lamb's-quarters and annual grasses was 60, 20, 60, 40, and 60% of the MRR for isoxaflutole plus atrazine, 100, 20, 40, 20, and 80% of the MRR for dimethenamid plus dicamba/atrazine, <100, 20, 60, 60, and 60% of the MRR for glufosinate plus atrazine, and 20, 20, 20, 20, and 40% of the MRR for nicosulfuron/rimsulfuron plus dicamba/diflufenzopyr, respectively. Yield of corn was not affected when isoxaflutole plus atrazine, dimethenamid plus dicamba/atrazine, glufosinate plus atrazine, or nicosulfuron/ rimsulfuron plus dicamba/diflufenzopyr were used at 20, 40, 60, 80 and 100% of the MRR. Nicosulfuron/rimsulfuron + dicamba/diflufenzopyr had the lowest EI. The results of regression analysis suggested that the MRR rates do not always maximize profit margins. In most cases profit margins was optimized by applying only 60% of the MRR.