

Small mammal populations in maryland meadows during four years of herbicide (brominal®) applications

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Abstract

The herbicide Brominal® was applied at the recommended rate to one plot in each of three paired 0.6-ha plots; the other three plots were used as controls. Plots were sprayed once in the fall of 1988 and 1989 and twice in the spring of 1990 and 1991. Small mammals were trapped three times during each activity season (April-October) to obtain population estimates before and after spraying and in the spring preceding fall spraying or the fall following spring spraying. Population estimates immediately after spraying gave no evidence of direct mortality. By 1991, dicot vegetation on treated plots was suppressed and mean numbers of meadow voles (*Microtus pennsylvanicus*) were less than on control plots. Because meadow voles favor dicots over monocots in their diet, reduced availability of dicots may have been related to the smaller vole population estimates. Species diversity of small mammals was negatively correlated with size of vole populations, but was not different between treated and control plots. Brominal apparently induced opaque corneas in nine voles. The condition was found in two voles too small to have been conceived at the time of the last previous spray nearly 8 months earlier, suggesting exposure to residue alone.