EVALUATION OF POTENTIAL WATER CONDITIONERS AS ADJUVANTS FOR GLYPHOSATE. Donald Penner and Jan Michael, Michigan State University, Department of Crop and Soil Sciences, East Lansing, MI 48824.

Anionic herbicides such as glyphosate readily form salts with cations occurring in hard water. These include Ca, Mg, and Fe. Water conditioning adjuvants such as diammonium sulfate are recommended to prevent the formation of the salts which are not as readily absorbed by plants. Relevant to the goal of identifying and evaluating potential water conditioning substitutes for diammonium sulfate we established that the requirement for a water conditioner differed with the weed species as follows: velvetleaf>giant foxtail>common lambsquarters. Furthermore, both the NH_4^+ and the SO_4^- contributed to the water conditioning efficacy of diammonium sulfate. The motivation for searching for potentially new water conditioning adjuvants is driven by the desire to find water conditioners that are liquid, have a high specific activity, and are cost effective. Studies conducted in the greenhouse have identified Exacto 390 and NTANK as potential water conditioners for glyphosate. They are liquid, have a high specific activity, are effective with a wide range of glyphosate products, and across a number of weed species.

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