INVESTIGATION OF WEED SUPPRESSION POTENTIAL OF POLYMER-INDUCED SOIL CRUSTING. Justin D. Valletta, Edward C. Luschei and Chris M. Boerboom, Undergraduate and Professors, Agronomy Weed Science Department, University of Wisconsin, Madison, WI 53706.

Natural soil crusting can impede both crop and weed emergence. If we could selectively induce crusts that impede weeds but not crops, such artificial crusting would have great weed control value. Such a crust could replace a variety of mulches and the problems associated with them.

Greenhouse and field studies have been conducted to evaluate the potential of a polymer induced soil crust weed barrier. Soil Net LLC, developed the polymer formulation in this study (SN2500). Greenhouse experiments were conducted to look at the relationship between carrier volume and concentration of SN2500 on soil crust strength. In the field study, four crops were seeded into a sandy pivot-irrigated soil and the soil was treated with various combinations of concentrate and carrier volume.

In the greenhouse we tested five concentrations (20%, 40%, 60%, 80%, and 100%) of a SN2500 liquid concentrate at (200, 400, 800, 1200, and 1600 gal/acre). Concentrations at 60% or higher with a volume of at least 800 gal/acre produced the best results. From these greenhouse studies, rates and carrier volumes were tested in the field.

Polymer was applied to square meter plots that were planted with wheat, alfalfa, onion, beat, or nothing planted. Some suppression can be seen in the higher carrier volume rates along with a higher concentration of SN2500. The field tests showed that we were able to form a crust with the polymer in field conditions, but application rates were high and the suppression of emergence was marginal. There also appears to be sufficient variation in the crust that allows weeds to successfully emerge.

2006 North Central Weed Science Society Proceedings 61:76.