

GLYPHOSATE RESISTANT VOLUNTEER CORN CONTROL WITH GLYPHOSATE GRASS HERBICIDE COMBINATIONS. Brady F. Kappler, Robert F. Klein, Alex R. Martin, Frew W. Roeth, Gail A. Wicks. Extension Educator – Weed Science, Professor, Professor, and Professor, Department of Agronomy University of Nebraska, Lincoln, NE 68583-0915.

As the acres of glyphosate resistant corn increase so does the number of acres of “volunteer” roundup ready corn in the following years glyphosate resistant soybean crop. Obviously this presents a problem since the preferred herbicide of choice is glyphosate resistant soybeans is glyphosate. The best treatment for volunteer corn has typically been one of the ACCase inhibiting grass herbicides. Rather than make two applications across the field producers prefer to apply glyphosate and the grass herbicides together in the same tank. The additive typically used with Glyphosate would be non-ionic surfactant (NIS) while several of the grass herbicides recommend either NIS or Crop Oil Concentrate (COC)

A field study was conducted at 3 locations in Nebraska to evaluate the effect of different additives on the efficacy of glyphosate and grass herbicide on volunteer corn and other weeds. The study was conducted in planted glyphosate resistant corn with natural weed pressure at Clay Center, Lincoln, and North Platte. The treatments included glyphosate herbicides glyphosate potassium salt (Roundup WeatherMax) and glyphosate isopropyl amine salt (Glyphomax) at 0.84 kg ae/ha. The grass herbicides in the study were fluazifop+ fenoxaprop, and clethodim at all 3 locations, and sethoxydim was included at Clay Center and Lincoln. These were used at normal rates for 29 to 37 cm tall corn. The additives chosen were 0.25% v/v NIS and crop oil COC at 2.3 l /ha. The treatments included glyphosate - grass herbicide and additive combinations and glyphosate and grass herbicides separately with each additive. The study was evaluated for glyphosate resistant corn control and other weed control at 10-14 and 25-30 DAT.

At Clay Center there was no difference between brand of glyphosate when mixed with grass herbicides for control. Fusion with NIS with both glyphosate brand provided significantly lower volunteer glyphosate resistant corn control than the other products as did WeatherMax and sethoxydim with COC. All other treatments provided 90+% control of the corn regardless of glyphosate, grass herbicide or additive. In Lincoln all of the products performed similarly averaging almost 90% volunteer corn control with no significant differences. At North Platte clethodim provided significantly less weed control when NIS was used. There were no differences between glyphosate brands or any other glyphosate grass herbicide mixtures. All volunteer corn control was over 90%. At all three locations there was no loss of glyphosate activity with any of the mixtures and glyphosate weed control of other weeds was not reduced with the addition of COC.

As a whole few differences were seen between different glyphosate - grass herbicide - additive mixtures in this study. Whether a glyphosate needs additional surfactant or not does not appear to play a role when controlling volunteer corn. The addition of grass herbicide or COC also does not appear to impact the activity of glyphosate. At the same time the addition of glyphosate to the tank mixture does not seem to impact grass herbicides ability to control volunteer corn. Also while it may not always be significant volunteer corn control was typically higher when COC was the additive versus NIS. With no apparent side effects COC appears to be the recommended additive for glyphosate resistant volunteer corn control applications when tank mixed with glyphosate.