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EVALUATING CHEMICAL DETERRENCE AT TWO SPATIAL SCALES: THE EFFECTIVENESS OF CHEMICAL DETERRENCE FOR SANDHILL CRANES IN CORNFIELDS

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Abstract: From 2006 through 2008, 9,10 anthraquinone (sold as Avitec™) was used as a deterrent on planted corn seed in Minnesota, Wisconsin, and Michigan. ICF conducted field trials in Wisconsin to determine efficacy of Avitec™ to repel sandhill cranes (*Grus canadensis*) from germinating corn. We assessed crane use at 2 levels: between and within habitats by crane population surveys to determine crane use of fields, and corn density surveys to assess possible damage within fields. In addition, corn seed samples were taken to assess amount of active ingredient on treated corn seeds in the ground. In 2008 the concentrations of Avitec™ on seed obtained from powder treatments (as compared to liquid treated) were generally lower. Where concentration of Avitec™ on the corn seeds was adequate (liquid or powder), it successfully deterred crane herbivory even though crane use of the fields remained high. Non-treated fields had higher damage as crane use increased, whereas treated fields had low or no damage, even with increased crane use. An effective deterrent is a win-win situation for both cranes and farmers. Its use protects a valuable crop while allowing cranes to access critical food items in cultivated fields, which also confers a benefit to the farmer (i.e., consumption of crop pests). Farmers can solve the problem more economically on their own without handling toxic seed treatments. Successful solutions such as this example are critical for advancing wildlife conservation on private lands.

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