SURVEY OF WEEDS AND WEED MANAGEMENT IN SWEET CORN GROWN FOR PROCESSING. Martin M. Williams II[1], Tom L. Rabaey[2], Chris M. Boerboom[3], and Adam S. Davis[1], [1]Ecologist, USDA-ARS, Urbana, IL 61801, [2]Integrated Pest Management Specialist, General Mills, LeSueur, MN 56058, and [3]Extension Weed Scientist, University of Wisconsin, Madison, WI 53706.

The north-central United States produces approximately one-half of sweet corn grown for processing, predominantly in Illinois, Minnesota, and Wisconsin. Improved weed management systems for sweet corn are desired greatly by growers, processors, and the seed industry; however, information on problematic weed communities and limitations to current weed management systems are poorly known. The objective of this study was to determine weed composition and management systems of sweet corn in the north-central U.S. Five days before harvest or immediately afterwards, survey crews counted weed density by species in 30 1-m^2 quadrats placed randomly along a 300- to 500-m loop through the field. Species that failed to be observed in quadrat sampling also were recorded. Using the criteria of filled and hard seed, species that produced any viable seed by the time of harvest were recorded, and overall weed interference level was rated visually. A total of 144 fields were surveyed in 2005 and 2006 in Illinois, Minnesota, and Wisconsin. Major production areas of sweet corn were included and survey dates ranged from July 12 to September 25. A total of 56 weed species were identified, although only 14 species occurred in all states, including: velvetleaf, redroot pigweed, common ragweed, giant ragweed, common lambsquarters, Canada thistle, barnyardgrass, woolly cupgrass, horseweed, fall panicum, wild proso millet, giant foxtail, green foxtail, and common cocklebur. Averaged over all fields, fall panicum and wild proso millet had the highest weed densities, at 1.4 and 1.1 plants m^{-2}, respectively. Relative abundance, a cumulative measure of frequency, density, and uniformity of each species, revealed shepherdspurse was very abundant in Wisconsin and not observed elsewhere, while ivyleaf morningglory and others were abundant only in Illinois. Thirty percent (43 of 144) of fields were rated for a low level of interference. Moderate and severe cases of interference were observed in 28% (40 of 144) of fields surveyed. Although differences in weed composition exist among the states, several species are common throughout the north-central sweet corn production region. Fall panicum and wild proso millet, are among the most universally dense, frequent, uniform, and fecund species observed. Despite management, weeds are a threat to sweet corn production, as evidenced by 58% of fields being rated for some level of weed interference at the time of crop harvest.

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