PREPLANT HERBICIDES FOR CONTROL OF DANDELION IN CORN AND SOYBEANS. Mark M. Loux and Anthony F. Dobbels, Associate Professor and Research Associate, Department of Horticulture and Crop Science, The Ohio State University, Columbus, OH 43210.

Field studies were conducted at two locations in Ohio in 2003 to determine: 1) the effectiveness of preplant corn and soybean herbicides for control of dandelion; and 2) the effect of spring application timing on control of dandelion with glyphosate and 2,4-D. For the first objective, corn and soybean herbicides were applied in late April in northwest (NW) and west central (WC) Ohio, during a period of below-average temperatures. No-tillage corn and glyphosate-tolerant soybeans were planted approximately one week after herbicide application. Corn received a postemergence treatment of dicamba plus diflufenzopyr, and soybeans received a postemergence treatment of glyphosate. Mesotrione plus atrazine was the most effective preplant corn herbicide treatment across both locations, controlling 97 and 87% of the dandelion 28 DAT in WC and NW Ohio, respectively. The addition of 2,4-D ester to this treatment improved late-season control of dandelion, and resulted in greater reduction in dandelion population density in NW Ohio. Mesotrione treatments reduced population density by at least 95% in WC Ohio and by 77 to 88% in NW Ohio, compared to untreated plots. Treatments controlling 83 to 93% of the dandelion 28 DAT in WC Ohio included isoxaflutole plus atrazine plus 2,4-D, atrazine plus glyphosate, and atrazine plus glyphosate plus 2,4-D. These treatments reduced dandelion population density by 68 to 92%. These same treatments controlled only 73% of the dandelion 28 DAT in NW Ohio, but they reduced dandelion population density by up to 75%.

Soybean herbicide treatments at WC Ohio included glyphosate applied alone and in combination with one or more of the following: 2,4-D ester, flumioxazin, carfentrazone, and chlorimuron plus sulfentrazone. Combinations of paraquat with 2,4-D, metribuzin, and chlorimuron plus sulfentrazone were also included. All treatments controlled 88 to 100% of the dandelion 28 DAT, with the exception of glyphosate plus carfentrazone plus 2,4-D and paraquat plus metribuzin plus 2,4-D. At soybean harvest, dandelion control ranged from 93 to 100%, and the reduction in dandelion population density ranged from 92 to 100%.

For the second objective, glyphosate and 2,4-D ester were applied at 0.8 and 1.1 kg ae/ha, respectively, in the fall and at 10-day intervals in the spring between April 1 and May 20. All of these treatments were followed with a postemergence application of dicamba plus diflufenzopyr in corn in NW Ohio, or glyphosate in soybeans in WC Ohio. The fall treatments averaged 90% dandelion control at the mid-May evaluation, and glyphosate and glyphosate plus 2,4-D treatments were generally more effective than 2,4-D. Dandelion control with the spring treatments averaged 63 and 85% in NW and WC Ohio, respectively, in late-June, but both herbicide and timing affected control. In NW Ohio, control averaged across herbicides ranged from 93 to 94% for applications on May 10 or 20, but did not exceed 65% for earlier applications. When averaged over timing in NW Ohio, 2,4-D applied in the spring provided 44% control, glyphosate, 59% control, and glyphosate plus 2,4-D, 85% control of dandelion. In WC Ohio, control averaged across herbicides ranged from 86 to 94% for all timings except April 1, when it averaged 64%. When averaged over timing in WC Ohio, 2,4-D applied in the spring provided 73% control, glyphosate, 88% control, and glyphosate plus 2,4-D, 94% control of dandelion. Similar differences among locations, timing, and herbicide were observed for late-season measurements of dandelion population density.