

FALL AND SPRING DANDELION CONTROL IN SOYBEAN. Anthony F. Dobbels and Mark M. Loux, Research Associate and Professor, The Ohio State University, Columbus, OH 43210.

Dandelion continues to be problematic for soybean producers in Ohio. Previous research has shown that fall herbicide applications can be effective for the control of dandelion. However, some growers choose to use a spring application, in order to maximize the longevity of weed control from residual herbicides. This research was conducted to determine the most effective fall and spring herbicide treatments for control of dandelion. Herbicides were applied on November 9, 2004, and April 20, 2005 in west central Ohio and on April 15, 2005 in northwest Ohio. Fall and spring treatments were followed with a postemergence (POST) application of glyphosate approximately 4 weeks after planting of glyphosate-resistant soybean. Treatments were visually evaluated for dandelion control at the time of planting in west central Ohio, several weeks after planting, at the time of POST application, and at the time of soybean harvest at both locations. Measurements at harvest included the population density of dandelion and soybean yield in all plots.

Dandelion control from all of the fall-applied treatments was sufficient to prevent soybean yield loss the following year, when followed by a postemergence glyphosate treatment. Control at the time of soybean harvest ranged from 75 to 98%, and reduction in dandelion population ranged from 73 to 95%. Fall application of chlorimuron plus tribenuron plus 2,4-D controlled 98% of dandelion at the time of soybean harvest, and reduced the population density by 95%. Similar control resulted from combinations of glyphosate plus 2,4-D with either chlorimuron plus sulfentrazone, chlorimuron plus tribenuron, or cloransulam. Glyphosate plus 2,4-D controlled 82% of the dandelion at harvest, and reduced dandelion population density by 73%. The addition of flumioxazin or imazaquin to glyphosate plus 2,4-D did not improve dandelion control when applied in the fall.

Spring treatments included glyphosate at 0.84 kg a.e and 1.23 kg a.e/ha, and glyphosate at 0.84 kg a.e/ha plus the following: cloransulam, flumioxazin, sulfentrazone, metribuzin, flumioxazin plus cloransulam, chlorimuron plus tribenuron, or chlorimuron plus thifensulfuron. These treatments were applied with and without 0.64 kg ai/ha of 2,4-D ester approximately 14 days before soybean planting. In west central Ohio, the inclusion of 2,4-D improved dandelion control in the first evaluation, 14 days after application, which occurred at the time of soybean planting. At that time, dandelion control ranged from 33 to 78% for treatments applied without 2,4-D, and from 57 to 82% for treatments applied with 2,4-D. Dandelion control at that time was also higher for treatments that included flumioxazin or sulfentrazone. The addition of 2,4-D ester did not improve control in later evaluations, and data were combined. Data were combined over sites for visual evaluations of control at 30 DAT and at the time of POST glyphosate application, due to the lack of a significant site by treatment interaction.

Almost all spring treatments provided at least 85% dandelion control 30 days after application. At the time of POST glyphosate application, the only treatments controlling at least 85% of the dandelion were combinations of glyphosate plus chlorimuron plus either tribenuron or thifensulfuron. Dandelion control in northwest Ohio at the time of soybean harvest ranged from 88 to 100%, and dandelion population densities were reduced by 65 to 100%. However, presumably due to more unfavorable environmental conditions, dandelion control in west central Ohio ranged from 48 to 83%, and dandelion population densities were reduced by only 27 to 71%. The most effective treatments in west central Ohio at the time of harvest were the following: glyphosate plus cloransulam plus flumioxazin; and glyphosate plus chlorimuron plus either tribenuron or thifensulfuron. These treatments controlled 82 to 83% of the dandelion, and reduced population densities by 66 to 71%. The only other treatment to reduce population density by more than 50% was glyphosate plus cloransulam, which controlled 73% of the dandelion at harvest. Soybean yield was similar among spring-applied treatments at both locations.