Dandelion control timing study with glyphosate and 2,4-D. Woodburn, IN, 2003-2004. Dewell, Reece A., Vince M. Davis, William G. Johnson, and J. Earl Creech. A field study was conducted to evaluate seven application timings of glyphosate, 2,4-D, and glyphosate + 2,4-D for dandelion control in soybean. The study was conducted on a Hoytville-Nappanee silt loam/silty clay loam soil with 3% organic matter in a cooperator's field near Woodburn, IN, about 5 to 10 miles ENE of Fort Wayne, IN. Treatments were arranged in a randomized complete block with four replications. Individual plot dimensions were 10 by 30 feet. Beck's 323RR soybean was planted 1. 5 inches deep into a no-till seedbed on May 6 in 15-inch rows, at a population of 175,200 seeds/acre. Herbicide treatments were applied with a CO_2 backpack sprayer delivering 15 gpa and equipped with XR8002 flat fan nozzles. A late postemergence (LPOST) maintenance treatment of fluazifop-P&fenoxaprop + fomesafen&adjuvant + dimethenamid-P + MSO + AMS (0.684&0.191+0.235+0.437+1.0%+2.5 lb/A) was applied over the entire study area, including non-treated checks, using a 4-wheeler on June 4. This maintenance application was primarily intended for annual weed control and possibly some seedling dandelion activity. Application dates, weed growth stage, and weather data are listed below:

Date	Nov 17, 2003	Apr 1, 2004	Apr 9, 2004	Apr 20, 2004	Apr 30, 2004	May 11, 2004	May 20, 2004
Treatment	FALBD	APR-1	APR-10	APR-20	APR-30	MAY-10	MAY-20
Temperature							
Air (F)	52	50	69	61	62	71	75
Soil (F)	46	44	54	54	56	66	70
Soil moisture	moist	moist	dry surface	dry surface	dry surface	wet	wet
Wind (mph)	0 to 2	4 to 6	2 to 4	5 to 10	5 to 8	calm	5 to 8
Cloud cover (%)	100	95	< 5	100	100	100	100
Relative humidity (%)	90	48	21	51	93	100	85
Precipitation							
Prior week (inch)	0.25	1.0	0	0	0.08	1.37	1.49
Week 1 (inch)	1.54	0.01	0	0.30	1.45	0.52	1.50
Week 2 (inch)	0.38	0	0.24	1.02	1.17	2.59	2.70
Soybean (inch)	na	na	na	na	na	na	1 to 2 (VC)
Dandelion (rosettes)	2 to 8 inch	8 to 12 inch	2 to 12 inch	2 to 12 inch	8 to 12 inch	10 to 14 inch	12 to 18 inch
Dandelion (growth stage)	vegetative	buds in crown	early bud	50% bud 50% flower	flowering	seed disseminated	flowering
Dandelion (density)	8 to 11 / m^2	8 / m^2	4 to 50 / m^2	6 to 20 / m^2	9 to 20 / m^2	9 to 15 / m^2	8 to 16 / m^2

Minimal amounts of crop injury were noted. Notable exceptions were treatments containing 2,4-D applied on May 20. These treatments were applied after soybean emergence and resulted in severe injury as expected. Injury symptoms observed with other treatments, especially glyphosate alone, is most likely explained by potential drift from the May 20 application. Glyphosate + 2,4-D consistently provided better control than either product alone across most rating dates. At the June 4 rating, all treatments applied on or before April 10 (early bud stage) provided greater than 78% dandelion control. This level of control was only obtained with the glyphosate + 2,4-D mixtures at the later application timings (post flowering). By the September 2 rating date, only six treatments still provided >80% control of dandelion: all three April 1 treatments, glyphosate + 2,4-D (FALBD and April 10 applications), and 2,4-D applied alone on April 10. Poor dandelion control and high dandelion counts in the May 20 applied treatments were further enhanced due to the observed soybean injury and lack of crop competition. All three treatments applied prior to dandelion flowering reduced subsequent fall dandelion stands by 33% to 69% compared to non-treated checks. (Dept. Botany and Plant Pathology, Purdue University, West Lafayette, IN).

Table. Dandelion control timing study with glyphosate and 2,4-D. Woodburn, IN, 2003-2004. (Dewell, Johnson, Creech, and Davis).

Treatment[a]	Rate	Application[b]	GLXMA			TAROF			
			6/4[c]	7/1[d]	9/2[e]	6/4[c]	7/1[d]	9/2[e]	10/7[f]
	(lb/A)		% injury			% control			# / 75 ft^2
2,4-D(EH)	1.0	FALBD	0	0	0	80	53	62	51
Glyphosate(WMAX) + AMS	0.77+2.5	FALBD	0	0	0	78	73	61	66
2,4-D(EH) + glyphosate(WMAX) + AMS	1.0+0.77+2.5	FALBD	0	13	0	88	72	82	51
2,4-D(EH)	1.0	APR-1	3	13	0	90	74	81	44
Glyphosate(WMAX) + AMS	0.77+2.5	APR-1	0	0	0	93	81	81	44
2,4-D(EH) + glyphosate(WMAX) + AMS	1.0+0.77+2.5	APR-1	0	0	0	98	89	89	42
2,4-D(EH)	1.0	APR-10	0	0	0	93	83	85	30
Glyphosate(WMAX) + AMS	0.77+2.5	APR-10	0	0	0	90	80	71	66
2,4-D(EH) + glyphosate(WMAX) + AMS	1.0+0.77+2.5	APR-10	6	13	0	100	92	84	40
2,4-D(EH)	1.0	APR-20	15	13	0	53	50	62	40
Glyphosate(WMAX) + AMS	0.77+2.5	APR-20	5	0	0	61	45	56	51
2,4-D(EH) + glyphosate(WMAX) + AMS	1.0+0.77+2.5	APR-20	5	13	0	91	81	73	44
2,4-D(EH)	1.0	APR-30	0	0	0	54	38	45	86
Glyphosate(WMAX) + AMS	0.77+2.5	APR-30	3	0	0	69	46	68	50
2,4-D(EH) + glyphosate(WMAX) + AMS	1.0+0.77+2.5	APR-30	0	13	0	84	61	73	59
2,4-D(EH)	1.0	MAY-10	0	0	0	75	66	78	58
Glyphosate(WMAX) + AMS	0.77+2.5	MAY-10	0	0	0	68	46	50	128
2,4-D(EH) + glyphosate(WMAX) + AMS	1.0+0.77+2.5	MAY-10	3	0	0	85	89	71	69
2,4-D(EH)	1.0	MAY-20	98	100	100	24	82	8	112
Glyphosate(WMAX) + AMS	0.77+2.5	MAY-20	3	25	38	43	86	26	122
2,4-D(EH) + glyphosate(WMAX) + AMS	1.0+0.77+2.5	MAY-20	99	100	100	45	90	6	143
Non-treated Check			0	13	0	--	--	--	98
LSD (0.05)			11	22	13	21	19	19	34

[a] Treatments: 2,4-D(EH) = ethylhexyl ester; Glyphosate(WMAX) = Roundup Weathermax from Monsanto; AMS = S-Sul sprayable ammonium sulfate from Agriliance, LLC.

[b] Late postemergence (LPOST) maintenance application was made on 06/04/2004 to the entire study area, including nontreated checks:
fluazifop-P&fenoxaprop + fomesafen&adjuvant + dimethenamid-P + MSO + AMS (0.684&0.191+0.235+0.437+1.0%+2.5 lb/A)
[MSO = Destiny modified vegetable oil and nonionic surfactant blend from Agriliance, LLC. (99.6% methylated seed oil, soybean oil, alkylphenol ethoxylate)]

[c] Evaluation (June 4) is 200 DAT (FALBD) and 64, 56, 45, 35, 24, and 15 DAT (multiple SPRBD)

[d] Evaluation (July 1) is 227 DAT (FALBD) and 91, 83, 72, 62, 51, and 42 DAT (multiple SPRBD)

[e] Evaluation (September 2) is 290 DAT (FALBD) and 154, 146, 135, 125, 114, and 105 DAT (multiple SPRBD)

[f] Evaluation (October 7) is 325 DAT (FALBD) and 189, 181, 170, 160, 149, and 140 DAT (multiple SPRBD)