

Eastern black nightshade control in glyphosate-resistant soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Buffalo, ND, to evaluate eastern black nightshade control at three different timings. EPOST (early postemergence) treatments were applied on June 19, 2003 at 11:45 am with 76 F air, 76 F soil surface, 34% relative humidity, 0% clouds, 10 to 15 mph SW wind, dry soil surface, moist subsoil, and no dew present to 1 to 3 inch (5 to 50/ft²) eastern black nightshade. POST treatments were applied July 1 at 12:30 pm with 84 F air, 80 F soil surface, 58% relative humidity, 0% clouds, 10 to 15 mph SE wind, dry soil surface, moist subsoil, and no dew present to 2 to 4 inch (5 to 50/ft²) eastern black nightshade. LPOST (late postemergence) treatments were applied July 18 at 10:30 am with 73 F air, 82 F soil surface, 53% relative humidity, 25% clouds, 1 to 3 mph SE wind, dry soil surface, moist subsoil, and no dew present to 6 to 12 inch (5 to 50/ft²) eastern black nightshade. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plots with a bicycle-wheel-type plot sprayer with an attached wind screen delivering 8.5 gpa at 40 psi through 8001 flat fan nozzles. The experiment had a randomized complete block design with three replicates per treatment.

Lack of nightshade control from glyphosate is a concern. The objective of this study was to determine control from glyphosate applied alone at different nightshade stages or applied with imazamox or fomesafen at a reduced glyphosate rate. Treatments were applied in a non-crop environment which nullified any control from crop competition. Results on August 8 were very surprising. Glyphosate applied at 0.58 or 0.75 lb/A to nightshade at 1 to 3 inches, 2 to 4 inches, or 6 to 12 inches gave at least 92% control. Glyphosate has no residual control and though complete control was observed at July 15 additional nightshade flushes would have been expected. No rain occurred after application which may help explain high level of nightshade control 1.5 months after the earliest application. Reducing the rate of glyphosate to 0.38 lb/A and adding imazamox or fomesafen did not extend nightshade control. Control was no greater than 60% when glyphosate used with reduced rates of imazamox or fomesafen&adjuvant. Adding MSO adjuvant to glyphosate&imazethapyr premix formulation increased nightshade control from 72 to 96%. The micro-rate of bentazon&sethoxydim+imazamox+fomesafen did not control nightshade. Perhaps the micro-rate would have provided better control if applied at EPOST instead of POST. (Dept. of Plant Sciences, North Dakota State University, Fargo).

Table. Eastern black nightshade control in glyphosate-resistant soybean (Zollinger and Ries).

Treatment ¹	Rate (lb/A)	July 3	July 15	July 24	August 8
		SOLPT (%)	SOLPT (%)	SOLPT (%)	SOLPT (%)
<u>EPOST</u>					
Glyphosate ² +AMS	0.58	99	99	99	99
Glyt ² +AMS	0.75	99	99	99	99
<u>POST</u>					
Glyt ² +AMS	0.58		99	97	92
Glyt ² +AMS	0.75		99	97	90
Glyt ³ +imazamox+MSO	0.38+0.012		99	93	83
Glyt ³ +immx+MSO	0.38+0.007		99	91	57
Glyt ³ +immx+Renegade	0.38+0.007		99	87	53
Glyt ³ +fomesafen&adjuvant+MSO	0.38+0.176		99	85	57
Glyt ³ +fome+MSO	0.38+0.117		99	83	50
Glyt ³ +fome+MSO	0.38+0.071		99	87	53
Glyt ³ +fome+Renegade	0.38+0.071		99	87	60
Imazethapyr&glyphosate	0.032&0.375		99	84	72
Imep&glyt+Renegade	0.032&0.375		99	96	96
Bentazon+sethoxydim+fome+immx+MSO	0.38+0.08+0.07+0.007		99	67	40
Bent+seth+fome+immx+Renegade	0.38+0.08+0.07+0.007		99	67	40
<u>LPOST</u>					
Glyt ² +AMS	0.75			84	97
Glyt ² +AMS	0.58			76	95
Imep&glyt+glyt ² +NIS	0.48&0.56+0.35			99	99
LSD (0.05)		0	0	5	7

¹AMS = ammonium sulfate at 8.5 lb/100 gal; MSO = methylated seed oil = Scoil at 1% v/v; Renegade = MSO basic blend at 1% v/v, NIS = nonionic surfactant = Activator 90 at 1 pt/100 gallon.

²Glyphosate = Roundup UltraMax.

³Glyphosate = Roundup Original.