

EFFECT OF PRETRANSPLANT APPLICATIONS OF SANDEA ON SWEETPOTATO

J.L. Main, M.W. Shankle, and T.F. Garrett

Pontotoc Ridge-Flatwoods Experiment Station; North Mississippi Research and Extension Center; Mississippi State University; Pontotoc, MS 38863

ABSTRACT: Effects of Sandea 75WG (halosulfuron-methyl) on sweetpotato injury, weed control, and yield were evaluated in Pontotoc County, Mississippi in 2004. No differences were observed in plant injury due to the preplant application of either Sandea or Valor at 1 week after planting (WAP). Nutsedge control was at least 90% with all preplant Sandea and Valor treatments. Nutsedge control was at least 81% for all Sandea and Valor treatments at 2 weeks after post treatment (WAT) and control was at least 98% for treatments that included Sandea at 28 days after planting (DAP). US No. 1 grade yield ranged from 243 to 88 boxes/ac for Sandea at 0.66 oz/ac applied 7 days before planting (DBP) followed by (f/b) hipping prior to transplanting and Sandea at 0.50 oz/ac applied 7 DBP, respectively. Total marketable yield ranged from 410 to 170 boxes/ac for Sandea at 0.66 oz/ac applied 7 DBP f/b hipping prior to transplanting and Sandea at 0.66 oz/ac applied 7 DBP f/b 0.25 oz/ac at 28 DAP, respectively.

CITATION: Main, J.L., M.W. Shankle, and T. F. Garrett. 2005. Effect of pretransplant applications of Sandea on sweetpotato. Annual Report 2004 of the North Mississippi Research & Extension Center. Mississippi Agriculture & Forestry Experiment Station Information Bulletin 419:211-214.

KEYWORDS: Sandea, sweetpotato

MATERIALS AND METHODS: A Sandea 75WG (halosulfuron-methyl) study was established at Pontotoc County, Mississippi in 2004 to evaluate weed control, sweetpotato plant injury, and yield grades. The soil type was a Henry silt loam (coarse-silty, mixed, thermic Typic Fragiaqualfs). The experimental design was a randomized complete block with 4 replications. Plots were 10 X 25 ft. Pre-plant fertilizer and lime were applied according to Mississippi State Soil Testing Laboratory recommendations.

Beauregard sweetpotato slips were transplanted into a conventional tilled seedbed on June 21. Planting rate was 1 plant/ft on 40-in rows. Lorsban 4 EC (chlorophyrifos) at 2 lb ai/ac was incorporated prior to planting. Treatments were applied using a CO₂ tractor sprayer. Sandea was applied at 7 days before transplant (DBP) at rates of 0.50, 0.66, or 1.00 oz/ac alone and followed by a 28 days after transplant (DAP) sequential Sandea at 0.25, 0.50, 0.66, and 1.00 oz/ac. A standard preplant treatment of Valor 50 DG at 2 oz/ac was included, as well as a weedy and weed free check. The entire study area was treated with a POST application of Command 3ME at 3pt/ac immediately after transplant.

Visual observations of plant injury and nutsedge control were made 1, 2, 3, and 4 weeks after transplant (WAP) and 1, 2, 3, and 4 weeks after the post-transplant treatments (WAT) of Sandea. Ratings for weed control and plant injury were rated on a scale of 0 to 100%, where 0 = no control up to 100 = complete plant growth termination.

The center row of each 3-row plot was harvested on November 9 for a total of 141 growing days. Sweetpotatoes were graded to determine US No.1, Canner, Cull, and Jumbo yield. Total marketable yield in 40 lb boxes/ac was recorded as the sum of US No.1, Cannerns, and Jumbo grade yields. Analysis of variance was conducted and means were separated using Fishers' protected LSD ($\alpha=0.10$).

RESULTS AND DISCUSSION: This research was conducted to evaluate nutsedge weed control and plant injury with Sandea in sweetpotato production. No differences were observed in plant injury due to the preplant application of either Sandea or Valor at 1 WAP (Table 1). The highest plant injury at 1 WAT was 16.3% with Sandea at 1 oz/ac PRE f/b 0.66 oz/ac at 28 DAP, which was not different from 13.8% with Sandea at 0.66 oz/ac PRE f/b 0.50 oz/ac at 28 DAP. The highest plant injury at 3 WAT was 5% with Sandea at 1 oz/ac PRE f/b 0.66 oz/ac at 28 DAP, which was not different than 3.8% injury with Sandea at 0.66 and 1 oz/ac PRE f/b 0.50 oz/ac at 28 DAP.

Nutsedge control was at least 90% with all preplant Sandea and Valor treatments (Table 1). Nutsedge control was at least 81% for all Sandea and Valor treatments at 2 WAT and control was at least 98% for treatments that included Sandea at 28 DAP.

US No. 1 grade yield ranged from 243 to 88 boxes/ac for Sandea at 0.66 oz/ac applied 7 DBP f/b hipping prior to transplanting and Sandea at 0.50 applied 7 DBP, respectively (Table 2). Total marketable yield ranged from 410 to 170 boxes/ac for Sandea at 0.66 oz/ac applied 7 DBP f/b hipping prior to transplanting and Sandea at 0.66 oz/ac applied 7 DBP f/b 0.25 oz/ac at 28 DAP, respectively. There were no differences within either canner or cull yield. Preliminary research indicates that Sandea applied as a pretransplant application could be useful in a weed management system to control nutsedge in sweetpotato production.

COOPERATORS: Craig Abel, Research Leader, USDA-ARS; Keith Majure, Technical Service, Gowan Company; and Frank Carey, Market Development, Valent U.S.A. Corp.

Table 1. Mean sweetpotato plant injury and nutsedge control with Sandea herbicide study at the Pontotoc Ridge-Flatwoods Branch Experiment Station in 2004.

Treatment	Plant Injury % Damage			Nutsedge Control % Control		
	1 WAP	1 WAT	3 WAT	3 WAP	2 WAT	3 WAT
Sandea 0.50 oz/ac 7 DBP ¹	1	0.0 f ²	0.0 c	100 a	95.0 ab	93.8 abc
Sandea 0.66 oz/ac 7 DBP	1	0.0 f	0.0 c	100 a	97.5 a	96.0 abc
Sandea 1.00 oz/ac 7 DBP	0	0.0 f	0.0 c	100 a	97.5 a	96.3 ab
Sandea 0.66 oz/ac 7 DBP fb 0.25 oz/ac 28 DAP ³	0	11.3 bc	2.5 b	100 a	99.8 a	98.8 a
Sandea 0.66 oz/ac 7 DBP fb 0.50 oz/ac 28 DAP	3	13.8 ab	3.8 ab	99 a	98.8 a	100.0 a
Sandea 0.66 oz/ac 7 DBP fb 0.66 oz/ac 28 DAP	1	12.5 b	0.0 c	98 a	100 a	100.0 a
Sandea 1.00 oz/ac 7 DBP fb 0.25 oz/ac 28 DAP	3	12.5 b	2.5 b	98 a	100 a	98.8 a
Sandea 1.00 oz/ac 7 DBP fb 0.50 oz/ac 28 DAP	4	12.5 b	0.0 c	97 a	98.8 a	98.8 a
Sandea 1.00 oz/ac 7 DBP fb 0.66 oz/ac 28 DAP	1	16.3 a	0.0 c	100 a	100 a	100.0 a
Sandea 0.25 oz/ac 28 DAP	NA	6.3 de	0.0 c	NA	100 a	100.0 a
Sandea 0.50 oz/ac 28 DAP	NA	5.0 e	0.0 c	NA	98.8 a	100.0 a
Sandea 0.66 oz/ac 28 DAP	NA	8.8 cd	0.0 c	NA	98.8 a	100.0 a
Valor 2.00 oz/ac Preplant	5	0.0 f	0.0 c	96 ab	88.8 bc	87.5 cd
Sandea 0.66 oz/ac 7 DBP Hip at planting	0	0.0 f	0.0 c	99 a	93.8 ab	90.0 bc
Sandea 1.00 oz/ac 7 DBP Hip at planting	1	0.0 f	0.0 c	90 b	81.3 c	81.3 d
Untreated	0	0.0 f	0.0 c	0 c	0.0 d	0.0 e
Weed Free Check	0	0.0 f	0.0 c	100 a	100 a	100 a
LSD (0.10)	NS	3.20	1.8	6.5	8.27	8.51

¹ DBP= Days Before Planting

² Means followed by the same letter are not different

³ DAP= Days After Planting

Table 2. Mean sweetpotato yield among treatments in a Sandea herbicide study at the Pontotoc Ridge-Flatwoods Branch Experiment Station in 2004.

Treatment	US No. 1	Canner	Cull	Jumbo	Total Marketable
	-----40 lb boxes/ac-----				
Sandea 0.50 oz/ac 7 DBP ¹	88.9 f ²	136.1	100.0	8.1 cd	233.1 def
Sandea 0.66 oz/ac 7 DBP	157.7 b-f	151.1	140.3	29.7 abc	338.6 a-e
Sandea 1.00 oz/ac 7 DBP	109.6 def	107.8	97.3	0.0 d	217.5 ef
Sandea 0.66 oz/ac 7 DBP fb 0.25 oz/ac 28 DAP ³	100.0 def	63.1	120.8	7.2 cd	170.3 f
Sandea 0.66 oz/ac 7 DBP fb 0.50 oz/ac 28 DAP	154.3 b-f	106.9	61.0	22.2 bcd	283.4 a-f
Sandea 0.66 oz/ac 7 DBP fb 0.66 oz/ac 28 DAP	137.9 c-f	140.9	65.3	12.9 cd	291.7 a-f
Sandea 1.00 oz/ac 7 DBP fb 0.25 oz/ac 28 DAP	93.3 e-f	114.2	154.6	28.4 bcd	235.8 c-f
Sandea 1.00 oz/ac 7 DBP fb 0.50 oz/ac 28 DAP	180.8 a-d	85.6	160.9	0.0 d	266.5 b-f
Sandea 1.00 oz/ac 7 DBP fb 0.66 oz/ac 28 DAP	140.0 c-f	158.0	91.8	43.0 ab	341.0 a-e
Sandea 0.25 oz/ac 28 DAP	200.1 abc	158.3	124.2	4.8 cd	363.2 a-d
Sandea 0.50 oz/ac 28 DAP	210.3 abc	136.5	99.1	28.2 bcd	375.1 ab
Sandea 0.66 oz/ac 28 DAP	239.4 a	116.3	150.5	9.0 cd	364.7 a-d
Valor 2.00 oz/ac Preplant	116.6 def	103.9	108.1	3.6 cd	224.1 ef
Sandea 0.66 oz/ac 7 DBP Hip at planting	243.6 a	138.6	78.0	28.2 bcd	410.5 a
Sandea 1.00 oz/ac 7 DBP Hip at planting	180.5 a-d	124.7	132.2	12.9 cd	318.1 a-e
Untreated	227.4 ab	157.1	96.9	14.1 cd	398.6 ab
Weed Free Check	172.1 a-e	139.5	171.4	57.1 a	368.7 abc
LSD (0.10)	81.32	NS	NS	28.60	133.68

¹ DBP= Days Before Planting

² Means followed by the same letter are not different

³ DAP= Days After Planting