

VOLUNTEER CORN CONTROL AND WHEAT RESPONSE TO SELECT MAX, GRAMOXONE INTEON, AND FINESSE

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INTRODUCTION

Problems with volunteer corn prior to wheat planting, has been a concern, especially this past fall. The options for managing volunteer corn include tillage or a foliar applied herbicide. Tillage provides immediate results, but may increase the risk of soil erosion and requires more time relative to using burndown herbicides. While tillage will destroy emerged volunteer corn plants, it may stimulate germination of any remaining seeds that were incorporated in the soil during the tillage process.

Glyphosate is a good option for controlling volunteer corn, providing corn plants do not have the glyphosate resistant trait. Previous research has been done with burndown applications of Gramoxone and Finesse on managing volunteer corn prior to planting wheat. There is interest in using Select Max (clethodim) for managing glyphosate resistant volunteer corn because of its ability to control grassy weeds. However the current Select Max label requires a minimum interval of 30 days between application and planting wheat.

A field trial was conducted in the fall of 2011 to evaluate volunteer corn control and wheat injury following preplant burndown applications of Select Max (clethodim), Gramoxone Inteon (paraquat), and Finesse (chlorsulfuron + metsulfuron). Gramoxone was applied at 1 Day Before Planting (DBP); whereas, Select Max and Finesse were each applied 1, 3, or 7 DBP. The heights of corn plants at the time of applications were approximately 5 to 6 inches.

Details concerning herbicide rates, additives, and application timing are indicated in the footnotes of Table 1.

RESULTS

Gramoxone Inteon provided rapid burndown control of volunteer corn. By the time of the first frost on October 21, control of volunteer corn with Gramoxone Inteon was 99%.

Control with Select Max was slower compared with that observed with Gramoxone Extra. Volunteer corn control on October 17 with Select Max ranged from 88 to 93% when applied 7 DBP compared with 58 to 63% when applied at 1 DBP. By October 22, control ranged from 78 to 80%, 93 to 99%, and 97 to 99% when applied 1, 3, and 7 DBP, respectively. Applying Select Max at the low rate of 6 oz/A at 7 DBP resulted in 99% control of volunteer corn on October 22.

Control of volunteer corn with Finesse was especially slow. Ratings of volunteer corn made October 22 were 50, 73, and 80% for 1, 3, and 7 days before planting wheat. Freezing temperatures caused significant damage to corn before Finesse achieved maximum activity.

Select Max was the only herbicide to injure wheat. As much as 20% injury was observed on November 21 (42 DAP) when Select Max was applied at 24 oz/A at 1 DBP. However, based on conditions in this experiment, wheat injury from Select Max at 6 oz/A was rare and did not exceed 1% when applied at 1 DBP. The injury from Select Max did not impact the stands or heights of wheat.

Table 1. VOLUNTEER CORN CONTROL AND WHEAT INJURY FOLLOWING BURNDOWN APPLICATIONS OF SELECTMAX, GRAMOXONE INTEON, AND FINESSE (UKREC 2012)

HERBICIDES ¹	TIMING ²	VOL CORN CONTROL (%)		WHEAT INJURY (%)			WHEAT STAND Plants/ft ²	WHEAT HEIGHT (INCHES)
		7 DAP 10-17-11	12 DAP 10-22-11	12 DAP 10-22-11	28 DAP 11-07-11	42 DAP 11-21-11	16 DAP 10-26-11	16 DAP 10-26-11
Gramoxone Inteon (2pt/A)	1 DBP	93	99	0	0	0	36.3	4.7
Select Max (6 oz/A)	1 DBP	63	80	1	1	0	32.1	4.9
Select Max (12 oz/A)	1 DBP	60	78	4	5	4	32.9	4.3
Select Max (24 oz/A)	1 DBP	58	80	38	33	20	31.6	4.2
Finesse (0.5 oz/A)	1 DBP	30	50	0	0	0	37.1	4.3
Select Max (6 oz/A)	3 DBP	70	93	0	0	0	37.2	4.4
Select Max (12 oz/A)	3 DBP	75	98	3	4	0	37.4	4.7
Select Max (24 oz/A)	3 DBP	81	99	18	13	4	31.4	4.6
Finesse (0.5 oz/A)	3 DBP	30	73	0	0	0	36	4.1
Select Max (6 oz/A)	7 DBP	88	99	0	0	0	34.3	4.5
Select Max (12 oz/A)	7 DBP	92	99	0	0	0	34.8	4.5
Select Max (24 oz/A)	7 DBP	93	97	3	3	6	34.4	4.5
Finesse (0.5 oz/A)	7 DBP	60	80	20	0	0	37.1	4.3
CHECK		0	0	0	0	0	36.3	4.7
LSD (0.05)		7	7	16	3	2	NS	NS

¹ Additives were included as follows:

- Nonionic surfactant at 0.25% with Gramoxone Inteon
- Nonionic at 0.25% v/v with Finesse
- Nonionic surfactant 0.25% + AMS 2.5 lb/A with Select Max

² Timing of burndown applications expressed as Days Before Planting (DBP):

- 1 DBP: 10-09-2011 Corn plant height ranged 2 to 7" averaged 5"
- 3 DBP: 10-07-2011 Corn plant height ranged 2 to 9" averaged 5.6"
- 7 DBP: 10-03-2011 Corn plant height ranged 3 to 10" averaged 6.1"

- Pioneer 25R32 wheat was planted 10-10-2011
- First measurable rain event after herbicide applications and wheat planting was 0.2" on 10-13-11
- First freezing temperature of 32⁰ F that injured corn plants occurred 10-21-11.
- Timing of ratings in Days After Planting (DAP) & calendar dates
 - 7 DAP: 10-17-11
 - 12 DAP: 10-22-11
 - 16 DAP: 10-26-11
 - 28 DAP: 11-07-11
 - 42 DAP: 11-21-11