

Disclaimer:

This document is based on the results from an individual trial and may contain experimental use patterns that are currently off-label. **This document does not provide any interpretation and should not be taken as an endorsement of any unregistered use pattern.**

Professional advice should be sought for specific recommendations to ensure access to the most up to date information and knowledge.

Any product referred to in this document must be used strictly as directed, and in accordance with all label or permit instructions. Always consult the label prior to use.

Managing Residual Herbicide Plantback

Trial ID: AM09-10 10

Location: Gil Gil

Trial Year: 2010

Investigator: Anthony Mitchell

Objective:	To evaluate the impact of crop and sowing setup on damage from residual herbicides	
Soil Type:	Brigalow	
Application:	T1	T2
Application Date:	11/12/2009	5/03/2010
Nozzles:	AIXR110015	
Pressure:	300 kPa	
Volume:	70 L/ha	
Keywords:	Residual herbicides, plantback	

Winter Crop:

Sowing Date:	07/06/2010 (178 days after T1 and 94 days after T2)
Sowing Rate:	50 kg/ha
Rainfall Application- Planting:	384 mm after T1 and 128 mm after T2
Tyne Planter:	5 rows x 32 cm spacing
Disc Planter:	2 rows x 1 m spacing

NB: Increased speed of planting used to examine impact of soil throw on crop safety. Crops sown under marginal moisture with disc planter only just able to access moist soil

Trt No.	Treatment	Rate g or mL/ha	Timing	Bread wheat - EGA Gregory 28/06/2010 21 DAP Emergence Plants/m ²			Durum - Caparoi 28/06/2010 21 DAP Emergence Plants/m ²	Barley - Commander 28/06/2010 21 DAP Emergence Plants/m ²	Chickpea - PBA Hattrick 28/06/2010 21 DAP Emergence Plants/m ²	
				Tyne Sown	Tyne Sown (fast)	Disc sown	Tyne sown	Tyne sown	Tyne sown	Disc sown
1	Untreated	-	-	55	54	46	48	56a	13	14
2	Diuron 900 DF	1000	T1	50	50	41	52	53a	13	12
3	Diuron 900 DF	2000	T1	54	50	46	54	57a	11	13
4	Diuron 900 DF + Flame	1000 + 150	T1	53	50	40	44	54a	12	13
5	Diuron 900 DF + Flame	2000 + 300	T1	51	54	44	43	54a	11	14
6	Diuron 900 DF	1000	T2	48	51	42	44	50a	11	12
7	Diuron 900 DF	2000	T2	49	50	47	48	52a	14	14
8	Diuron 900 DF + Flame	1000 + 150	T2	54	55	46	44	50a	13	14
9	Diuron 900 DF + Flame	2000 + 300	T2	42	49	38	37	38b	11	20
P =				0.244	0.8392	0.3001	0.0512	0.0028	0.8254	0.345
LSD =				nsd	nsd	nsd	nsd	8.25	nsd	nsd

Treatment means followed by the same letter are not significantly different at P = 0.05

nsd = No significant difference

DAP = Days after Planting

Managing Residual Herbicide Plantback

Trial ID: AM09-10 10

Location: Gil Gil

Trial Year: 2010

Trt No.	Treatment	Rate g or mL/ha	Timing	Bread Wheat - EGA Gregory			Durum - Caparoi	Barley - Commander	Chickpea - PBA Hattrick	
				31/08/2010 85 DAP			31/08/2010 85 DAP	31/08/2010 85 DAP	31/08/2010 85 DAP	
				Biomass Rating*			Biomass Rating	Biomass Rating	Biomass Rating	
				Tyne Sown	Tyne Sown (fast)	Disc Sown	Tyne Sown	Tyne Sown	Tyne Sown	Disc Sown
1	Untreated	-	-	4.6ab	4.7a	3.9b	4.3a	3.9b	3.9a	3.7a
2	Diuron 900 DF	1000	T1	4.8a	5.0a	4.5ab	4.3a	4.2ab	3.3ab	3.9a
3	Diuron 900 DF	2000	T1	4.8a	5.2a	5.0a	4.5a	5.0a	3.8a	4.2a
4	Diuron 900 DF + Flame	1000 + 150	T1	4.5ab	4.7a	4.3ab	3.8a	4.2ab	3.0ab	3.7a
5	Diuron 900 DF + Flame	2000 + 300	T1	4.3ab	5.0a	4.3ab	4.3a	4.1ab	3.3ab	3.7a
6	Diuron 900 DF	1000	T2	4.5ab	4.7a	4.5ab	4.4a	3.9ab	3.5a	4.2a
7	Diuron 900 DF	2000	T2	4.0b	4.5a	3.8b	4.3a	4.1ab	3.3ab	3.9a
8	Diuron 900 DF + Flame	1000 + 150	T2	2.9c	3.5b	2.6c	2.5b	3.0c	2.0bc	2.5b
9	Diuron 900 DF + Flame	2000 + 300	T2	2.5c	3.0b	2.3c	1.8b	2.1d	1.0c	1.7b
P =				0.0000	0.0007	0.0000	0.0001	0.0000	0.0022	0.0002
LSD =				0.7	sqrt detransf	0.9	1.0	log detransf	1.2	log detransf

Biomass Rating (1 - 5 scale, where 1 = very poor, 5 = best plot of Untreated)

Trt No.	Treatment	Rate g or mL/ha	Timing	Bread wheat - EGA Gregory			Durum - Caparoi	Barley - Commander	Chickpea - PBA Hattrick	
				30/09/2010 115 DAP			30/09/2010 115 DAP	30/09/2010 115 DAP	30/09/2010 115 DAP	
				Biomass Rating % of Untreated			Biomass Rating % of Untreated	Biomass Rating % of Untreated	Biomass Rating % of Untreated	
				Tyne Sown	Tyne Sown (fast)	Disc Sown	Tyne Sown	Tyne Sown	Tyne Sown	Disc Sown
1	Untreated	-	-	100a	100a	100a	100a	100a	100a	99.3a
2	Diuron 900 DF	1000	T1	100a	100a	100a	100a	100a	100a	99.3a
3	Diuron 900 DF	2000	T1	99.8a	99.8a	99.8a	99.8a	98.8a	99.8a	99.5a
4	Diuron 900 DF + Flame	1000 + 150	T1	100a	100a	100a	100a	100a	99.8a	98.0a
5	Diuron 900 DF + Flame	2000 + 300	T1	99.8a	99.8a	99.8a	99.8a	98.8a	98.5ab	95.8ab
6	Diuron 900 DF	1000	T2	99.8a	99.8a	99.8a	99.8a	98.8a	97.5ab	98.3a
7	Diuron 900 DF	2000	T2	100a	100a	100a	100a	100a	100a	99.5a
8	Diuron 900 DF + Flame	1000 + 150	T2	98.0b	98.0b	98.8b	97.8b	95.5b	96.0b	92.3b
9	Diuron 900 DF + Flame	2000 + 300	T2	97.5b	97.5b	98.0c	95.8c	96.0b	81.3c	83.8c
P =				0.0002	0.0002	0.0000	0.0000	0.0019	0.0000	0.0000
LSD =				1.1	1.1	0.4	1.1	2.4	3.1	4.0

NB: Growth Stage: Bread wheat at mid flowering, Durum at milk to soft dough, Barley at milk to soft dough, Chickpea at flowering to podding (60-80cm in height)

Managing Residual Herbicide Plantback

Trial ID: AM09-10 10

Location: Gil Gil

Trial Year: 2010

Trt No.	Treatment	Rate g or mL/ha	Timing	Chickpea - PBA Hattrick			
				31/08/2010 85 DAP (1-5 scale, where 0 = no yellowing) Discoloration		30/09/2010 115 DAP % Rating Discoloration	
				Tyne Sown	Disc Sown	Tyne Sown	Disc Sown
1	Untreated	-	-	0c	0c	0b	0
2	Diuron 900 DF	1000	T1	0c	0c	0b	0
3	Diuron 900 DF	2000	T1	0c	0c	0b	0
4	Diuron 900 DF + Flame	1000 + 150	T1	0c	0c	0b	0
5	Diuron 900 DF + Flame	2000 + 300	T1	0c	0c	0b	0
6	Diuron 900 DF	1000	T2	0c	0c	0b	0
7	Diuron 900 DF	2000	T2	0c	0c	0b	0
8	Diuron 900 DF + Flame	1000 + 150	T2	2.3b	0.9b	0b	0
9	Diuron 900 DF + Flame	2000 + 300	T2	3.5a	2.0a	5.5a	2.5
P =				0.0000	0.0000	0.0000	0.4613
LSD =				0.5	0.4	1.6	nsd

Trt No.	Treatment	Rate g or mL/ha	Timing	Bread Wheat - EGA Gregory 9/11/2010 155 DAP Yield (t/ha)			Durum - Caparoi 9/11/2010 155 DAP Yield t/ha	Barley - Commander 9/11/2010 155 DAP Yield t/ha
				Tyne Sown	Tyne Sown (fast)	Disc Sown	Tyne Sown	Tyne Sown
1	Untreated	-	-	3.32ab	3.17ab	2.58ab	2.98bc	3.62
2	Diuron 900 DF	1000	T1	3.22ab	3.24ab	2.62ab	3.13ab	3.75
3	Diuron 900 DF	2000	T1	3.31ab	3.23ab	2.66ab	3.27a	3.63
4	Diuron 900 DF + Flame	1000 + 150	T1	3.12ab	3.24ab	2.68a	3.00ab	3.65
5	Diuron 900 DF + Flame	2000 + 300	T1	3.42a	3.34a	2.73a	3.27a	3.87
6	Diuron 900 DF	1000	T2	3.42a	3.20ab	2.67ab	3.09ab	3.81
7	Diuron 900 DF	2000	T2	3.14ab	3.00bc	2.45bc	3.00ab	3.46
8	Diuron 900 DF + Flame	1000 + 150	T2	2.75c	2.85c	2.29c	2.70c	3.52
9	Diuron 900 DF + Flame	2000 + 300	T2	3.04bc	3.05bc	2.28c	2.87bc	3.52
P =				0.0088	0.0293	0.0013	0.0076	0.2225
LSD =				0.33	0.27	0.22	0.28	nsd

NB: Chickpeas not harvested due to Heliothis damage

Key Points:

1. Commander barley appeared more sensitive for emergence than other winter crops but effects only at 'overlap' Flame rate from delayed application timing
2. Delayed application of Flame reduced biomass of all crops
3. Delayed application of Flame increased Chickpea discoloration
4. Delayed application of Flame reduced bread wheat yield in all sowing setups with no significant effect in durum or barley
5. No obvious impact from tyne v. disc (or sowing speed) on crop safety in this situation although yield lower in bread wheat sown with disc

Managing Residual Herbicide Plantback

Trial ID: AM09-10 10

Location: Gil Gil

Trial Year: 2010

Summer Crop:

Sowing Date:	06/10/2010 (299 days after T1 and 215 days after T2)
Rainfall Application- Planting	642 mm after T1 and 387 mm after T2
Tyne planter	5 rows x 32 cm spacing
Disc Planter:	2 rows x 1 m spacing

Trt No.	Treatment	Rate g or mL/ha	Timing	Sorghum - MR43 22/10/2010 16 DAP Emergence Plants/m ²		Mungbean - Crystal 22/10/2010 16 DAP Emergence Plants/m ²
				Tyne Sown	Disc Sown	Disc Sown
1	Untreated	-	-	6.0	6.2	15.3
2	Diuron 900 DF	1000	T1	5.8	5.9	14.9
3	Diuron 900 DF	2000	T1	5.6	5.9	16.2
4	Diuron 900 DF + Flame	1000 + 150	T1	6.1	6.4	16.1
5	Diuron 900 DF + Flame	2000 + 300	T1	5.7	6.1	15.8
6	Diuron 900 DF	1000	T2	6.0	6.4	15.1
7	Diuron 900 DF	2000	T2	5.9	6.2	15.0
8	Diuron 900 DF + Flame	1000 + 150	T2	6.1	5.7	14.2
9	Diuron 900 DF + Flame	2000 + 300	T2	5.2	6.3	15.9
P =				0.7510	0.7449	0.7354
LSD =				nsd	nsd	nsd

Trt No.	Treatment	Rate g or mL/ha	Timing	Sorghum - MR43 13/12/2010 68 DAP % Biomass Reduction		Mungbean - Crystal 13/12/2010 68 DAP % Biomass Reduction	Sorghum - MR43 22/12/2010 77 DAP Mature Heads /m ²	
				Tyne Sown	Disc Sown	Disc Sown	Tyne Sown	Disc Sown
1	Untreated	-	-	0.0c	0.0f	0.0b	1.6a	1.7a
2	Diuron 900 DF	1000	T1	1.3bc	0.6def	0.5b	0.6bc	0.7b
3	Diuron 900 DF	2000	T1	0.3c	0.1ef	1.3b	1.0abc	0.8ab
4	Diuron 900 DF + Flame	1000 + 150	T1	1.3bc	1.6cde	0.8b	0.7abc	0.8b
5	Diuron 900 DF + Flame	2000 + 300	T1	1.5bc	2.0cd	0.5b	0.4cd	0.4b
6	Diuron 900 DF	1000	T2	0.0c	1.4cde	0.5b	1.1ab	1.0ab
7	Diuron 900 DF	2000	T2	1.3bc	4.4c	0.3b	0.5bcd	0.7b
8	Diuron 900 DF + Flame	1000 + 150	T2	3.5b	10.3b	2.3b	0.1de	0.0c
9	Diuron 900 DF + Flame	2000 + 300	T2	11.3a	20.0a	6.5a	0.0e	0.0c
P =				0.0000	0.0000	0.0228	0.0002	0.0000
LSD =				2.7	Arcsin detransf	3.5	Arcsin detransf	Arcsin detransf

Managing Residual Herbicide Plantback

Trial ID: AM09-10 10

Location: Gil Gil

Trial Year: 2010

Trt No.	Treatment	Rate g or mL/ha	Timing	Sorghum - MR43 07/02/2011 124 DAP Yield t/ha	
				Tyne Sown	Disc Sown
1	Untreated	-	-	5.06	5.00a
2	Diuron 900 DF	1000	T1	5.21	4.90a
3	Diuron 900 DF	2000	T1	5.30	4.90a
4	Diuron 900 DF + Flame	1000 + 150	T1	5.08	5.10a
5	Diuron 900 DF + Flame	2000 + 300	T1	4.77	4.70a
6	Diuron 900 DF	1000	T2	5.35	5.08a
7	Diuron 900 DF	2000	T2	5.11	4.60a
8	Diuron 900 DF + Flame	1000 + 150	T2	5.23	4.60a
9	Diuron 900 DF + Flame	2000 + 300	T2	4.57	3.93b
P =				0.4526	0.0193
LSD =				nsd	0.6

Key Points

1. No clear differences for emergence in either crop or planting configuration
2. Delayed application of Flame reduced biomass of both crops
3. Tyne planted sorghum had less herbicide impact than disc planted
4. Delayed application of Flame caused slower sorghum head development. Impact also apparent from early application
5. Delayed application high rate of Flame reduced yield
5. Tyne sowing of sorghum reduced herbicide impact

Overall

Impact from sowing setup appeared minor in managing crop effects from residual herbicides