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Tolerance of new cereal varieties to current herbicides.

D Bowran

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Recommended Citation

Bowran, D. (1988), *Tolerance of new cereal varieties to current herbicides.*. Department of Primary Industries and Regional Development, Western Australia, Perth. Report.

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Trial title: Tolerance of cereal varieties to current herbicides
Trial number: 88EB26
Officers: D. Bowran
Co-operator: Location: East Beverley
Crop(s): Wheat, oats, barley Date sown: 26/5/88
Soil type: Sandy loam Fertilizer: 100 kg/ha Agras
Ground preparation: Sprayseed prior to seeding No.1
Experiment design: Seeding rate: 50 kg/ha

Plot size: 2 m x 10 m

Harvesting: 1.4 m x 8.5

Spraying details:

Spraying date: 26/5/88 22/6/88 21/7/88

Crop stage: IBS Z13-Z21/22 Z16+

Nozzle type: 110015B 11015LP 110015VB

Volume (L/ha): 42.8 52.5 49.0

Pressure (Kpa): 200 160 -

Temperatures (°C):

(a) wet/dry		18/20.5	11/15
(b) previous 24 h			
(min/max)	9.0 to 20.0	2.0 to 21.0	0 to 14.0 (frost)
(c) next 24 h			
(min/max)	10.0 to 20.0	35 to 23.5	2.0 to 17.0

Rainfall (mm):

(a) previous 24 h	0	0	0
(b) next 24 h	2.0	2.0	2.0

May -	June -	July -	Aug -	Sept -	Oct -
46.0	103.3	71.9	52.1	41.4	16.2

Weeds: Radish, wild oats.

Treatment	Rate (/ha)	Timing	Variety						
			Spear	Dagger	Kulin	Cranbrook	Gamenya	Stirling	Mortlock
Untreated Yield (t/ha)			4.31	4.33	4.20	4.38	4.06	3.89	4.10
1. Glean	15 g	IBS	104	97	97	92	85*		
		Z12-13						81**	89*
2. Logran	30 g	IBS	94	88	89	92	96	75**	89*
3. Hoegrass + Brominil	1.5 L + 2.0 L	Z12-13	94	96	100	106	97	91	15**
4. Grasp + Brominil	1.5 L + 2.0 L	Z12-13	92	94	106	93	94	102	4**
5. Glean + Hoegrass + Oil	5 g + 750 mL + 1%	Z12-13	93	92	91	81**	87*	80**	72**
6. Ally	5 g	Z12-13	97	102	99	103	99	87	90
7. Brodal	200 mL	Z12-13	93	92	96	88	84*	92	97
8. Diuron + MCPA	350 mL + 400 mL	Z13-14	99	98	97	96	98	96	96
9. Igran + MCPA	550 mL + 600 mL	Z113-14	91	81	91	92	95	98	98
10. Brominil M	1.0 L	Z13-14	91	89	94	85*	87	87	88
11. 2,4-D amine	1.0 L	Z15 +	88*	87*	89	86*	80**	89	73**

Comments

While this site had a low population of weeds no yield increases were apparent. Few variety differences were apparent at this site, though Hoegrass + Glean reduced yield of Cranbrook significantly. In general there was a trend towards decreased yields in most herbicide treatments, though these were not significant.

Trial title: Tolerance of new cereal varieties to current herbicides
Trial number: 88EC27
Officers: D. Bowran, N. Thomson
Co-operator: Location: E.C.R.S.
Crop(s): Wheat, oats, barley Date sown: 9/6/88
Soil type: Eradu yellow sand Fertilizer: 100 kg/ha Agras
Ground preparation: 3 L Sprayseed prior to seeding No.1
Experiment design: Split plot Seeding rate: 50 kg/ha
Plot size: 2 m x 10 m
Harvesting: 1.4 m x 8.5
Spraying details:

<u>Spraying date:</u>	9/6/88	7/7/88	21/7/88
<u>Crop stage:</u>	IBS	Z13.5-14.5	Z15.5-16
<u>Nozzle type:</u>	80015LP	110015LP	110015LP
<u>Volume (L/ha):</u>	55.5	59.5	66
<u>Pressure (Kpa):</u>	200	-	-

Temperatures (°C):

(a) wet/dry	17/19	13/15	16.5/26
(b) previous 24 h (min/max)	12.5 to 20.5	11.0 to 20.0	
(c) next 24 h (min/max)	13.5 to 21.5	12.0 to 21.0	

Rainfall (mm):

(a) previous 24 h	3	3	10
(b) next 24 h	3	5	nil

May -	June -	July -	Aug -	Sept -	Oct -
138.6	72.4	121.6	68.4	23.0	10.4

Weeds: Nil.

(ii) Trial No. 88EC27

Treatment	Rate (/ha)	Timing	Kulin	Blade	79W/783	79W/781	79W/793	Spear
Control yield (t/ha)			2.00	2.02	1.88	1.80	2.48	1.87
Glean	10 g	IBS	99	102	100	83	88	105
	15 g		119	111	104	122	103	119
	20 g		85	85	95	91	87	97
	40 g		106	99	105	101	110	109
Logran	25 g	IBS	115	107	102	107	104	106
	30 g		106	98	93	83	75	111
	35 g		108	104	98	101	95	118
	70 g		100	114	121	121	118	116
Hoegrass	750 mL	Z12-13	128	120	119	136	111	116
	1.0 L		96	92	96	98	86	91
	1.5 L		114	111	115	113	97	104
	3.0 L		69*	70**	72**	74**	83*	69**
Treflan	1.0 L	IBS	96	102	103	106	96	105
Avadex	2.0 L	IBS	102	102	103	106	90	100
Diuron + MCPA	350 mL + 400 mL	Z13-14	101	108	109	113	110	109
Diuron + MCPA	700 mL + 800 mL	Z13-14	86	93	89	88	90	102
2,4-D amine	1.0 L	Z15 +	87	94	98	102	96	88
2,4-D amine	2.0 L		96	86	97	102	108	92
Brominil	1.0 L	Z12-13	112	106	109	109	101	119
Ally	5 g	Z12-13	101	97	102	96	98	104

Treatment	Rate (/ha)	Timing	Stirling	WUM143	76Q/225	Mortlock	76Q/142
Control yield (t/ha)			2.30	2.39	2.58	1.88	1.86
Glean	10 g	Z12-13	79	69**	84	93	83
	15 g		73*	76*	79*	87	67**
	20 g		87	70**	75**	87	85
	40 g		90	67**	67**	66**	48**
Logran	25 g	IBS	97	94	91	102	98
	30 g		77*	81	81*	87	80
	35 g		110	107	82*	109	86
	70 g		108	112	90	95	77*
Hoegrass	750 mL		120	124	83	102	75*
	1.0 L		78*	84	52**	85	61**
	1.5 L		85	91	34**	61**	27**
	3.0 L		79	72**	15**	5**	0**
Treflan	1.0 L	IBS	100	96	88	105	96
Avadex	2.0 L	IBS	105	100	74**	88	74*
Diuron + MCPA	350 + 400 mL	Z13-14	116	121	112	130	124
Diuron + MCPA	700 + 800 mL	Z13-14	90	98	102	114	105
2,4-D amine	1.0 L	Z15 +	90	97	90	112	115
2,4-D amine	2.0 L	Z15 +	103	126	89	101	100
Brominil	1.0 L	Z12-13	109	115	111	118	110
Ally	5 g	Z12-13	89	90	62**	86	77*

Comments

Few crop effects were experienced at this site. The major effect was due to variable fertility in replicates 3 and 4 and this has resulted in the somewhat up and down nature for the Glean, Logran and Hoegrass results. Hoegrass at 3.0 L/ha did produce large yield reductions in all varieties. Post-emergent applications of Glean reduced yields in both barley and oats with WUM/143 (Yagan) being most affected. Adequate tolerance was present to most post-emergent broad-leaf herbicides.

Trial title: Tolerance of new cereal varieties to current herbicides
Trial number: 88SC32
Officers: D. Bowran
Co-operator:
Crop(s): Wheat, barley oats, Location: Carrabin
 triticale Date sown: 31/5/88
Soil type: Sandy loam Fertilizer: 100 kg/ha Agras
Ground preparation: Nil No. 1. Topdressed
Experiment design: Split plot Seeding rate: 50 kg/ha
Plot size: 2 m x 10 m
Harvesting: 1.4 m x 8.5 m
Spraying details:
Spraying date: 30/5/88 31/5/88 30/6/88 7/7/88 17/8/88
Crop stage: IBS IBS Z13-14 Z13-14 Z15 +
Nozzle type: 80015LP 80015LP 11015VB 110015VB 110015VB
Volume (L/ha): 55 55/110 47 49 48
Pressure (Kpa): 200 200/200 240 230 240
Temperatures (°C):

(a) wet/dry	13/16	19/23.5	12.5/15	12/13	10.5/14
(b) previous 24 h (min/max)					
(c) next 24 h (min/max)					

Rainfall (mm):
 (a) previous 24 h
 (b) next 24 h

May - June - July - Aug - Sept - Oct -

Weeds: Nil.

(iii) Trial No. 88SC32

Treatment	Rate (/ha)	Timing	Kulin	Blade	79W/781	79W/783	79W/793	Dagger
Control yield (t/ha)			1.34	1.10	1.34	1.26	1.72	1.51
Glean	10 g	IBS	68*	112	113	90	81	107
	15 g		42**	76	60*	62	57**	77
	20 g		65*	77	94	75	79	85
	40 g		37**	96	73	80	61**	68
Logran	25 g	IBS	72*	100	98	86	74	96
	30 g		53**	144	130	120	99	89
	35 g		65*	113	131	162	135	79
	70 g		69*	106	72	70	57**	66
Hoegrass	750 mL	Z13-14	72	116	128	134	101	85
	1.0 L		48**	134	103	127	103	79
	1.5 L		131	113	111	108	84	110
	3.0 L		80	103	66	101	73**	99
Treflan	1.0 L	IBS	90	92	87	99	99	80
Avadex	2.0 L	IBS	130	158	139	144	104	134
Diuron + MCPA	350 mL + 400 mL	Z13-14	58*	113	87	98	80	65
Diuron + MCPA	700 mL/800 mL	Z13-14	58*	112	86	103	100	82
2,4-D amine	1.0 L	Z15 +	79	112	112	119	88	109
2,4-D amine	2.0 L	Z15	60*	140	123	126	104	116
Brominil	1.0 L	Z13-14	87	119	111	110	83	99
Ally	5 g	Z13-14	81	115	104	110	82	83

88SC32

Treatment	Rate (/ha)	Timing	Stirling	WUM143	76Q/225	Mortlock
Control yield (t/ha)					3.12	2.69
Glean	10 g	Z12-13	54	38*	71	64
	15 g		52	43*	71	65
	20 g		124	79	90	95
	40 g		30*	16**	59*	61
Logran	25 g		40	42	58	52
	30 g		93	50	69	75
	35 g		132	118	83	72
	70 g		18	15	48*	54
Hoegrass	750 mL		176	160	34**	66**
	1.0 L		74	40	20*	58**
	1.5 L		53	19	0**	0**
	3.0 L		42	15	0**	0**
Treflan	1.0 L	IBS	112	132	88	90
Avadex	2.0 L	IBS	129	130	74**	88
Diuron + MCPA	350 mL + 400 mL	Z13-14	53	53	81	90
Diuron + MCPA	700 mL/800 mL	Z13-14	80	75	84	86
2,4-D amine	1.0 L	Z15 +	99	106	97	88**
2,4-D amine	2.0 L	Z15 +	70	57	77**	71**
Brominil	1.0 L	Z13-14	46	56	76*	76*
Ally	5 g		44	48	77*	81

Comments

This site had a major problem with soil acidity and only triticale and oats grew satisfactorily. Barley was strongly influenced by the acidity and many herbicide results are more variable than could be expected. The variable nature of the acidity across the site has also influenced the statistical analysis and only large yield reductions are often significant.

Kulin wheat interacted strongly with both Glean and Logran with large reductions in yield being produced. Interactions with Hoegrass and diuron + MCPA were also in evidence. The major effect of these herbicides was to increase the level of stem breakage such that at high rates up to 50% of stems and ears had lodged. Both Treflan and Avadex were generally safe on Kulin.

Oats were also influenced by the soil acidity as most post-emergent treatments reduced yield.

Trial title: Tolerance of new cereal varieties to current herbicides.
Trial number: 88N72
Officers: D. Bowran
Co-operator: Location: NRS
Crop(s): Date sown: 21/6/88
Fertilizer: 100 kg/ha Agras

Soil type: Sand/clay
Ground preparation: Cultivated, sprayseed 1.0 L/ha prior to seeding
Experiment design: Seeding rate: 50 kg/ha

Plot size: 2 m x 10 m
Harvesting: 1.4 m x 8.5 m

Spraying details:

<u>Spraying date:</u>	21/6/88	20/7/88	18/8/88	14/9/88
<u>Crop stage:</u>	IBS	Z12-13	Z14-15	2-3 node, Z37
<u>Nozzle type:</u>	11015LP	11015VB	11015VB	110015VB
<u>Volume (L/ha):</u>		49	48	61
<u>Pressure (Kpa):</u>		230	240	140
<u>Temperatures (°C):</u>				

(a) wet/dry	9.5/13.5	12/15.5
(b) previous 24 h (min/max)		
(c) next 24 h (min/max)		

Rainfall (mm):

(a) previous 24 h	-	-	-	-
(b) next 24 h	-	-	-	3.0 mm

May -	June -	July -	Aug -	Sept -	Oct -
86.0	79.7	54.4	40.8	41.0	8.6

Weeds: Low burden annual ryegrass, though high in some areas.

(iv) Trial No. 88N72

Treatment	Rate (/ha)	Timing	Kulin	Blade	IW562	79W/783	Spear	Dagger
Control yield (t/ha)			3.19	2.84	3.05	3.07	2.92	2.90
Glean	10 g	IBS	87	80*	89	92	96	100
	15 g		87	99	81**	83*	88	102
	20 g		93	109	91	92	92	88
	40 g		98	79*	84*	92	91	108
Logran	25 g	IBS	110	112	116	116	119	110
	30 g		96	97	98	102	94	105
	35 g		106	107	101	103	107	107
	70 g		112	110	98	109	119	107
Hoegrass	750 mL	Z12-13	98	109	92	96	101	105
	1.0 L		101	94	96	113	118	111
	1.5 L		95	100	92	94	111	102
	3.0 L		111	112	100	102	116	99
Treflan	1.0 L	IBS	102	95	96	97	97	96
Avadex	2.0 L	IBS	92	93	92	93	96	96
Diuron + MCPA	350 mL + 400 mL	Z13-14	95	95	89	93	90	107
Diuron + MCPA	700 mL + 800 mL	Z13-14	87	89	82**	85*	89	91
2,4-D amine	1.0 L	Z15 +	93	89	81**	85*	91	96
2,4-D amine	2.0 L	Z15	78**	79*	73**	80**	85	86
Brominil	1.0 L	Z12-13	102	100	97	96	98	102
Ally	5 g	Z12-13	99	98	99	100	107	101