RESPONSE OF WHEAT VARIETIES TO SOWING TIME AT PITHARA IN 2009

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AIM

To investigate how new wheat genotypes respond to sowing times and environments in the Central Agricultural Region.

BACKGROUND

Growers are faced with a greater choice of new varieties from both Western Australia and the Eastern states, about which there is often little relevant information available in their local environment. Climate and weather conditions greatly influence the performance of new wheat cultivars both for yield and quality. Research in the CAR is assessing the responsiveness of new wheat varieties compared to existing wheat varieties to the time of sowing.

TRIAL DETAILS

Property	McIlroy family, Pithara
Plot size & replication	20m x 1.8m x 3 replicates
Soil type	Sandy Loam
Time of Sowing date	3: TOS1: 28/05/2009, TOS2: 17/06/2009, TOS3: 03/07/2009
Seeding rate	75 kg/ha
Fertiliser (kg/ha)	100 kg/ha Macropro plus banded at each seeding time, 85 kg/ha of urea as topdressed and 60 L flexi-N/ha
Paddock rotation	2006 = Wheat, 2007 = Wheat, 2008 = Lupins
Herbicides	2 L Sprayseed and 2 L Trifluralin/ha at each sowing time, 300 ml Axial, 0.5 % Adgor, 1 L Jaguar and 15 Logran were also applied
Growing Season Rainfall	201mm

RESULTS

Table 1. Effect of sowing time on yield, quality and economic returns of wheat varieties at Pithara 2009

Grade	Variety	Grain Yield (t/ha)				Protein (%)				Screenings (%)				Gross income ($/ha)		
		28-May	17-Jun	3-Jul	ave	28-May	17-Jun	3-Jul	ave	28-May	17-Jun	3-Jul	ave	28-May	17-Jun	3-Jul
AH	Carnamah	1.40	1.02	0.71	1.05	12.9	13.5	14.7	13.7	3.2	4.6	4.5	4.1	345	253	176
	King Rock	1.79	1.35	1.02	1.39	12.5	13.5	14.3	13.4	2.9	3.5	7.1	4.5	433	332	228
	Mace	1.57	1.35	1.02	1.31	12.6	12.6	13.8	13.0	3.4	3.2	5.2	3.9	381	325	253
APW	Axe	1.27	0.90	0.71	0.96	14.6	14.0	15.0	14.5	3.4	3.4	7.7	4.8	285	202	156
	DerrimutWt	1.16	0.99	0.58	0.91	12.9	13.0	15.0	13.6	8.6	6.6	11.5	8.9	254	217	121
	Espada	1.41	1.29	0.81	1.17	13.4	12.8	14.5	13.6	5.0	3.3	6.6	5.0	315	290	181
	Fang	1.22	0.87	0.63	0.91	14.0	13.5	14.9	14.1	14.7	10.0	6.6	10.4	212	182	132
	Gladius	1.30	1.15	0.86	1.10	13.4	13.4	13.8	13.5	4.1	4.4	4.5	4.3	292	257	192
	Katana	1.53	1.28	0.76	1.19	14.3	13.2	14.3	13.9	6.2	2.7	5.0	4.6	343	287	169
	Magenta	1.62	1.28	0.74	1.21	13.1	13.7	15.8	14.2	4.9	5.5	4.6	5.0	364	287	165
	Scout	1.43	1.10	0.80	1.11	14.2	12.6	14.8	13.9	8.1	4.6	7.5	6.7	313	246	175
	LR Lincoln	1.00	1.04	0.74	0.92	14.4	13.3	15.2	14.3	7.9	7.7	9.9	8.5	210	221	154
	Waagan	1.36	0.99	0.82	1.06	13.2	14.0	13.8	13.7	6.1	6.3	9.5	7.3	283	208	171
	Wyalkatchem	1.64	1.45	1.02	1.37	13.3	13.1	14.0	13.5	2.2	2.3	3.1	2.5	366	325	229
	Zippy	1.44	1.21	0.92	1.19	12.7	12.9	13.8	13.1	3.6	3.1	4.5	3.7	322	271	206

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		28-May	17-Jun	3-Jul	ave	28-May	17-Jun	3-Jul	ave	28-May	17-Jun	3-Jul	ave	28-May	17-Jun	3-Jul
SFT	Bumper	1.68	1.27	0.9	1.28	12.4	12.8	13.9	13.0	3.2	3.8	6.3	4.4	359	272	188
ASWN	Binnu	1.67	1.23	0.94	1.28	11.7	12.2	13.9	12.6	3.2	3.8	6.3	4.4	365	263	202
	Calingiri	1.23	0.99	0.90	1.04	13.3	13.1	13.4	13.3	2.0	2.6	3.2	2.6	263	213	193
	Yandanooka	1.40	1.25	0.83	1.16	13.2	13.4	14.0	13.5	2.8	3.4	5.0	3.7	299	268	177
	Fortune	1.46	1.20	0.85	1.17	12.9	12.3	14.2	13.1	2.5	3.7	5.0	3.7	312	257	181
	Average within each TOS	1.43	1.16	0.82	1.14	13.3	13.1	14.4	13.6	4.9	4.4	6.2	5.2			
	TOS (lsd)	0.38				1.6				2.5						
	Var (lsd)	0.18				0.7				1.5						
	Var(lsd) between TOS	0.44				1.8				3.2						
	Var (lsd) within TOS	0.32				1.3				2.5						
	%CV	15				5.8				22						

COMMENTS

- A field trial was conducted at Pithara in 2009. Twenty four wheat breeding lines from various Australian breeding companies were selected and sown at three times of sowing in a randomised block design with three replications. The first time of sowing (TOS), was in late May and subsequent sowings were at 17-20 days after TOS1 as rainfall allowed.
- Growing season rainfall from April-October was 263.8.mm. Low rainfalls in September, October and November were associated with yield reductions and high proteins in the latest sowing in the trial site.
- The highest grain yield was recorded in TOS 1. The average grain yield with late May sowing was 19% and 43% higher than the average yield with mid June and early July sowings respectively. The average grain yield and gross returns of the newly released variety King Rock exceeded all of the wheat varieties.
- At this site, most of the AH varieties achieved more than 13% protein at all sowing times except TOS1. However, all noodle wheat recorded above the delivery standard of 11.5% at all time of sowing. However, the gross return of Mace and King Rock were recorded higher than Scout, Katana and Magenta. Screenings have been at 5% or less most of the varieties except Fang, Derrimut Wt, Scout, LR Lincoln and Waagan. Hectolitre weight has exceeded the delivery standard of 74 kg/hl.
- Data on grain yield, grain protein and screenings were recorded and analysed using Genstat.
- Note: Screenings include whole and cracked grain. Gross income was calculated on the average yield and quality for each treatment using cash price. Base scale: APW $224. Grade spreads: AH1 +23, AH2 + 18, AUH -$5, ASW1 -$10, ANW1 -$10, AGP -$15, Feed -$50.

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