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"Flowering windows" for crops

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90N55-59, 90EB8-12, 90WH61-64, 90MT55-59, 90M46-50.

"Flowering Windows" for Crops (File No. 6041)

Wheat - 90BA 38-42, 90N 37-41, 90C 19-23, 90WH 46-49, 90M 31-35.
Barley - 90BA 48-52, 90N 50-54, 90C 29-33, 90EB 22-26, 90WH 56-59, 90E
41-45, 90MT 50-54, 90M 41-45, 90SG 49-53.
Oats - 90BA 43-47, 90N 45-49, 90C 24-28, 90EB 17-21, 90WH 51-54, 90E
36-40, 90MT 45-49, 90M 36-40, 90SG 44-48.
Lupins - 90BA 53-57, 90N 55-59, 90EB 8-12, 90WH 61-64, 90MT 55-59, 90M 46-50.

Aim

To determine the optimum flowering dates for wheat, barley, oats and lupins at a range of sites in the wheatbelt.

Methods

Cultivars (4-8) of each crop with a range of maturities were sown at up to five sowing dates from the break of the season at 15-20 day intervals. Flowering or heading dates (oats and barley) were taken for each cultivar at each sowing date. Estimates were also made of physiological maturity at most sites and grain yields were measured. The experiments were sown on Research Stations at Chapman, Badgingarra, Wongan Hills, Merredin, East Beverley, Newdegate, Mount Barker, Esperance and Salmon Gums.

Results

Grain yields (kg/ha) are given in the tables that follow:

Wheat

NB: Trials at Salmon Gums, Esperance and Mount Barker - see W. Smith summary, at E. Beverley - see A. Heinrien summary.

Chapman (90C 19-23)

Cultivar	21/5	2/6	19/6	2/7	19/7
Spear	2,595	2,935	2,331	1,828	1,753
Aroona	2,532	2,893	2,340	2,014	1,846
Gutha	2,270	2,861	2,144	1,790	1,744
Halberd	2,226	2,543	1,921	1,660	1,753
Kulin	2,662	3,030	2,564	2,182	2,051
Reeves	2,585	2,924	2,424	1,958	1,911
LSD (5%)	216	214	171	191	

Badgingarra (90BA 38-42)

NB: Severe damage from kangaroos and/or spray drift on first three sowings.

Cultivar	25/4	9/5	23/5	8/6	22/6
Spear	1,193	691	708	1,133	2,155
Aroona	1,031	723	649	1,081	1,973
Gutha	570	553	668	1,059	1,838
Halberd	1,171	721	445	1,074	1,622
Kulin	461	541	586	1,148	2,037
Reeves	789	585	567	1,074	1,966
LSD (5%)	263	n.s.	n.s.	n.s.	243

Wongan Hills (90WH 46-49)

Cultivar	10/5	24/5	7/6	21/6
Spear	2,495	4,586	3,769	4,149
Aroona	1,924	3,948	3,519	3,200
Gutha	1,669	3,062	2,656	3,222
Halberd	1,813	3,545	3,234	3,449
Kulin	1,676	3,838	3,550	3,685
Reeves	2,040	4,332	3,535	3,890
LSD (5%)	266	371	302	326

Merredin (90M 31-35)

Cultivar	1/5	17/5	1/6	12/6	25/6
Spear	2,756	2,137	1,228	1,140	1,626
Aroona	2,568	2,084	966	1,323	1,458
Gutha	2,311	2,252	1,350	1,386	1,776
Halberd	2,306	2,238	909	963	1,458
Kulin	2,287	2,538	1,153	1,340	1,865
Reeves	2,325	2,562	1,359	1,454	1,842
LSD (5%)	240	325	293	160	167

Newdegate (90N 37-41)

Cultivar	24/5	12/6	21/6	4/7	19/7
Spear	2,486	2,041	1,547	1,157	1,039
Aroona	2,439	2,161	1,265	1,203	945
Gutha	1,880	1,644	1,390	1,187	922
Halberd	1,424	1,659	1,078	953	969
Kulin	2,447	2,101	1,422	1,265	805
Reeves	2,127	2,127	1,531	1,265	1,016
LSD (5%)	585	311	238	n.s.	144

BarleyChapman (90C 29-33)

Cultivar	21/5	2/6	19/6	2/7	19/7
Stirling	3,366	3,849	2,909	2,387	2,275
Franklin	2,713	3,340	2,508	2,117	1,772
O'Connor	3,207	3,714	2,434	1,781	1,846
Onslow	2,825	3,383	2,769	2,219	1,855
Windich	3,077	3,658	2,937	2,592	2,536
Yagan	2,648	3,404	2,620	2,135	2,219
LSD (5%)	271	n.s.	251	134	196

Badgingarra (90BA 48-52)

NB: Kangaroos damaged first sowing.

Cultivar	25/4	9/5	23/5	8/6	22/6
Stirling	1,098	941	916	1,481	1,694
Franklin	1,804	1,022	887	1,207	1,472
O'Connor	1,266	1,295	953	1,489	1,547
Onslow	1,215	914	812	1,385	1,748
Windich	1,021	1,029	1,048	1,593	1,723
Yagan	775	852	859	1,667	2,084
LSD (5%)	326	n.s.	n.s.	174	178

Wongan Hills (90WH 56-59)

Cultivar	10/5	24/5	7/6	21/6
Stirling	2,660	3,707	4,082	4,305
Franklin	2,622	3,875	3,921	4,230
O'Connor	2,702	4,081	4,496	4,659
Onslow	2,772	4,160	4,402	4,562
Windich	2,711	4,007	4,390	4,600
Yagan	2,456	3,796	3,921	4,273
LSD (5%)	n.s.	n.s.	145	225

Merredin (90M 41-45) (Third and fourth sowings very weedy)

Cultivar	1/5	16/5	1/6	12/6	25/6
Stirling	2,525	2,068	890	1,109	1,250
Franklin	2,597	1,689	543	685	766
O'Connor	2,638	2,295	933	1,162	1,318
Onslow	2,788	1,966	632	895	990
Windich	2,588	2,261	931	1,103	1,678
Yagan	2,173	2,176	860	1,177	1,248
LSD (5%)	197	331	184	190	205

East Beverley (90EB 22-26) (Yagan attacked by parrots in first sowing)

Cultivar	27/4	9/5	22/5	6/6	20/6
Stirling	5,143	4,367	4,724	4,162	3,740
Franklin	5,681	4,632	4,612	3,806	3,261
O'Connor	4,787	5,039	4,781	4,106	3,471
Onslow	5,956	5,040	5,118	4,087	3,497
Windich	4,581	4,763	4,849	4,349	3,833
Yagan	1,520	4,375	4,243	3,625	3,615
LSD (5%)	868	300	296	241	254

Newdegate (90N 50-54)

Cultivar	24/5	12/6	21/6	4/7	19/7
Stirling	1,741	1,278	1,507	1,472	713
Franklin	1,296	1,009	771	750	116
O'Connor	1,843	1,287	1,498	1,694	551
Onslow	2,056	981	1,162	1,139	222
Windich	1,954	1,676	1,439	1,704	454
Yagan	1,324	1,176	1,364	1,352	412
LSD (5%)	317	294	232	212	158

Mount Barker (90MT 50-54)

Cultivar	8/5	23/5	7/6	22/6
Stirling	2,512	2,792	1,495	1,805
Franklin	3,011	3,507	2,329	2,727
O'Connor	2,246	2,329	1,403	1,530
Onslow	3,060	3,435	2,283	2,309
Windich	2,891	3,225	2,095	2,289
Yagan	1,860	2,235	1,299	1,411
Skiff	2,021	2,383	1,199	1,513
Ulandra	2,013	2,364	1,480	1,276
LSD (5%)	373	209	303	288

Esperance (90E 41-45) (Plot sizes variable due to Rhizoctonia bare patch)

Cultivar	23/5	7/6	22/6	6/7	20/7
Stirling	2,270	2,394	2,433	2,941	2,308
Franklin	2,505	2,839	2,593	2,539	1,667
O'Connor	2,385	2,855	2,501	2,777	2,291
Onslow	2,961	3,056	2,658	3,551	2,034
Windich	2,473	2,861	3,059	3,107	2,647
Yagan	2,532	2,405	2,383	2,962	2,392
Skiff	2,656	2,650	2,452	2,902	2,221
Ulandra	2,153	2,144	2,648	1,687	1,190
LSD (5%)	398	165	n.s.	366	220

Salmon Gums (90SG 49-52)

Cultivar	19/5	31/5	13/6	28/6
Stirling	490	519	602	842
Franklin	450	450	549	681
O'Connor	560	645	713	998
Onslow	430	484	470	619
Windich	617	619	685	983
Yagan	425	610	649	851
Skiff	715	722	742	975
Ulandra	266	269	259	294
LSD (5%)	89	65	104	97

Oats

Chapman (90C 24-28) (No yield from Esk plots - too late)

Cultivar	21/5	2/6	19/6	2/7	19/7
Mortlock	2,542	2,493	1,939	1,557	1,082
Dalyup	2,672	3,385	1,995	1,035	867
Esk	-	-	-	-	-
Murray	2,426	3,321	2,219	1,632	1,175
Winjardie	2,259	2,790	2,023	1,548	1,221
75Q:220	2,511	3,012	2,114	1,669	1,436
LSD (5%)	n.s.	529	186	164	124

Badgingarra (90BA 43-47)

Cultivar	25/4	9/5	23/5	8/6	22/6
Mortlock	1,606	800	903	1,273	1,112
Dalyup	2,043	1,044	1,219	1,407	1,184
Esk	269	252	352	368	274
Murray	1,392	704	1,144	1,297	1,064
Winjardie	1,723	881	1,044	1,397	1,216
75Q:220	1,144	800	1,116	1,146	1,016
LSD (5%)	205	331	163	111	109

Wongan Hills (90WH 51-54)

Cultivar	10/5	24/5	7/6	21/6
Mortlock	4,064	4,554	4,812	4,167
Dalyup	5,014	6,230	6,036	4,371
Esk	2,394	2,074	1,689	605
Murray	3,698	4,593	4,390	3,929
Winjardie	4,185	5,081	5,247	3,992
75Q:220	3,372	4,398	4,000	3,890
LSD (5%)	181	439	156	248

Merredin (90M 36-40)

Cultivar	1/5	16/5	1/6	12/6	25/6
Mortlock	2,090	1,851	851	712	985
Dalyup	3,107	2,133	1,038	398	616
Esk	408	-	-	-	-
Murray	2,376	1,912	972	741	1,237
Winjardie	2,700	1,983	930	497	1,048
75Q:220	2,053	1,790	1,083	1,003	1,730
LSD (5%)	458	n.s.	n.s.	257	334

East Beverley (90EG 17-21) (Parrots ate 75Q:220 and Murray at first two sowings)

Cultivar	27/4	9/5	22/5	6/6	20/6
Mortlock	4,257	3,994	3,562	3,462	2,722
Dalyup	5,228	4,589	4,293	3,868	2,949
Esk	1,112	1,460	744	712	-
Murray	1,455	2,767	3,706	2,868	2,210
Winjardie	3,339	4,037	4,256	4,243	3,119
75Q:220	520	1,158	2,706	3,018	2,992
LSD (5%)	878	998	814	895	530

Newdegate (90N 45-49)

Cultivar	24/5	12/6	21/6	4/7	19/7
Mortlock	1,584	1,898	1,802	1,250	753
Dalyup	2,396	2,312	1,860	1,187	794
Esk	216	406	325	281	88
Murray	1,398	1,711	1,263	844	653
Winjardie	1,494	1,664	1,146	891	786
75Q:220	1,755	2,133	2,099	1,031	1,160
LSD (5%)	216	248	297	395	250

Mount Barker (90MT 45-48)

Cultivar	8/5	23/5	7/6	25/6
Mortlock	2,795	2,706	1,989	1,728
Dalyup	2,919	2,736	1,932	1,799
Esk	1,667	1,574	1,431	1,076
Murray	2,266	2,423	1,847	1,676
Winjardie	2,866	2,469	2,172	1,667
75Q:220	1,914	2,060	1,714	1,402
LSD (5%)	317	206	427	170

Esperance (90E 36-40)

Cultivar	23/5	7/6	22/6	6/7	20/7
Mortlock	1,834	1,504	1,433	1,322	1,687
Dalyup	2,356	2,359	1,578	1,911	1,715
Esk	1,678	1,359	1,441	1,022	1,826
Murray	1,718	1,537	1,456	1,556	1,682
Winjardie	2,248	2,389	1,461	1,759	1,915
75Q:200	1,722	1,626	1,539	1,600	1,648
LSD (5%)	265	294	n.s.	244	n.s.

Salmon Gums (90SG 44-47)

Cultivar	19/5	31/5	13/6	28/6
Mortlock	448	569	431	459
Dalyup	487	713	552	477
Esk	-	-	-	-
Murray	356	551	478	487
Winjardie	565	650	538	532
75Q:220	482	674	613	682
LSD (5%)	n.s.	37	69	70

Lupins (not sown at Chapman, for Salmon Gums and Esperance, see M. Seymour summary)

Badgingarra (90BA 53-57)

Cultivar	25/4	9/5	23/5	8/6	22/6
Danja	2,089	1,993	1,919	1,467	733
Gungurru	2,304	2,526	2,259	1,607	637
Kiev Mutant	644	578	400	941	274
Yorrel	1,593	2,000	1,978	1,630	822
LSD (5%)	357	369	258	154	206

Wongan Hills (90WH 61-64)

Cultivar	26/4	10/5	24/5	8/6
Danja	1,069	1,363	1,106	1,519
Gungurru	1,329	1,366	1,009	1,549
Kiev Mutant	403	549	414	738
Yorrel	894	1,269	1,060	1,551
LSD (5%)	228	249	427	142

Merredin (90M 46-50)

Cultivar	24/4	8/5	25/5	7/6	21/6
Danja	599	457	143	97	28
Gungurru	374	491	187	95	32
Kiev Mutant	233	484	313	158	91
Yorrel	384	515	199	127	46
LSD (5%)	168	n.s.	168	n.s.	26

East Beverley (90EB 27-30)

Cultivar	27/4	7/5	22/5	6/6
Danja	1,200	763	1,015	278
Gungurru	1,444	1,315	1,041	157
Kiev Mutant	881	493	733	32
Yorrel	1,170	963	1,067	370
LSD (5%)	291	122	148	129

Newdegate (90N 55-58)

Cultivar	21/5	12/6	18/6	2/7
Danja	694	586	430	352
Gungurru	733	391	352	234
Kiev Mutant	463	312	195	234
Yorrel	694	508	391	312
LSD (%%)	200	87	110	68

Mount Barker (90MT 55-58)

Cultivar	16/5	31/5	15/6	28/6
Danja	887	177	687	579
Gungurru	1,042	548	1,026	826
Kiev Mutant	278	154	525	633
Yorrel	664	270	648	532
LSD (5%)	96	269	148	65