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Evaluation of cauliflower and broccoli varieties

Spring Planting

(June - October 2006)

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Introduction

This is the final report on the evaluation of cauliflower and broccoli varieties conducted at the Manjimup Horticultural Research Institute during 2005 and 2006. The results are provided to allow seed suppliers, seedling nurseries, producers, packers and marketers to identify the best variety for a particular harvest period. All varieties receive exactly the same treatment throughout their growth. This has allowed the identification of agronomic requirements that may be specific to some varieties. Varieties that have specific agronomic requirements may perform better when the growing inputs are exactly tailored to suit these varieties. Contact details for participating seed companies are available in Appendix 2.

Trial Details

Transplanting and Harvesting Dates

Table 1: Transplant and harvest dates for cauliflower and broccoli.

	Transplanting Dates	First Harvest Date	Last Harvest Date
Cauliflower	29 June 2006	3 October 2006	19 October 2006
Broccoli	29 June 2006	29 September 2006	6 October 2006

Note: Not all varieties were harvested on every date. These days represent the total harvest days across all varieties.

Fertiliser Applications

Fertiliser was applied both at transplanting and post transplanting. Details of fertiliser application are given below. All varieties received the same fertiliser program.

Table 2: Fertiliser application for all varieties.

Date	Product	Rate of Application	Method of Application
29 June 2006	Summit Spud	1500 kg/ha	Incorporated at planting
29 June 2006	All Phos	150 kg/ha	Incorporated at planting
3 July 2006	Ammonium nitrate	75 kg/ha	Foliar application
13 July 2006	Soluble boron	10 kg/ha	Foliar application
13 July 2006	Sodium molybdate	1 kg/ha	Foliar application
13 July 2006	Zinc sulphate	14 kg/ha	Foliar application
16 July 2006	Ammonium nitrate	100 kg/ha	Foliar application
26 July 2006	Urea	100 kg/ha	Foliar application
3 August 2006	Soluble boron	10 kg/ha	Foliar application
3 August 2006	Zinc sulphate	14 kg/ha	Foliar application
10 August 2006	Potassium nitrate	150 kg/ha	Foliar application
17 August 2006	Calcium chelate	1 kg/ha	Foliar application
24 August 2006	Calcium nitrate	100 kg/ha	Foliar application
31 August 2006	Calcium nitrate	100 kg/ha	Foliar application
10 September 2006	Calcium nitrate	100 kg/ha	Foliar application
20 September 2006	Calcium nitrate	100 kg/ha	Foliar application
30 September 2006	Calcium nitrate	50 kg/ha	Foliar application (to cauliflower only)

Planting
Cauliflower were grown in a two row per 1.7 m bed configuration at a within row spacing of 40 cm and a between row spacing of 80 cm. Broccoli were grown in a three row per 1.7 m bed configuration at a within row spacing of 45 cm and a between row spacing of 45 cm. All varieties were grown in 5.1 m x 6 m plots and were surrounded by a buffer variety. At harvest, 5 m of the four inner rows of each cauliflower plot and 3 m of the seven inner rows of each broccoli plot were picked, which provided approximately 100 plants for assessment (50 per replicate).

Weather Conditions
Weather conditions were monitored daily throughout the life of the crop. Details of the weather can be found in Appendix 1. Average maximum daily temperatures were 14.7°C for June, 13.9°C for July, 15.7°C for August, 16.0°C for September and 18.8°C for October. Crops were irrigated with over-head sprinklers. Irrigation was scheduled according to 100% evaporation replacement.

Insect, Disease and Weed Control
A monitoring program for insects and disease was conducted throughout the life of the crop and were controlled as required. Weeds were controlled prior to transplanting and post transplanting.

Prior to harvest
A visual assessment of vegetative vigour and plant frame was conducted at approximately ten weeks after transplanting. Varieties were given a vigour rating from one to five relative to the vigour of the control variety. Observations on plant frame size and the wrapping ability of the plant (ability of inner heart leaves to self-cover the developing curd) were recorded. The percentage of sibs present was also noted.

Covering
Curds were covered as required to prevent curd discolouration. The number of covers required by each variety in addition to curds covered at harvest was recorded. Curds were covered whenever the curd was visible through the frame or if there was a risk that the curd may have become visible before harvest.

Harvesting
All leaves are removed from around the cauliflower curd and broccoli head during the harvesting procedure so that an accurate estimation of yield (t/ha) can be made. Harvesting occurred every three to four days as required. Harvesting is delayed as long as possible, up to when curd/head quality would decrease if delayed longer. Broccoli was cut so the stem was about the same length as the diameter of the heads, giving an evenly proportioned head width and stem length.

Grading
The cauliflower and broccoli were graded to allow a comparison of their yield and quality to be made. All curds and heads were assessed for total and marketable yield and quality. Marketable yield was determined by the weight of the curd or head, a quality grade score and the density of the curd or head. Colour of the curd and head was also taken into account. A marketable cauliflower curd/broccoli head was considered to be of a high standard of quality (with no visible defects or markings).

An acceptable weight for cauliflower was a curd between 0.5 and 2 kg. The curd should be a round, domed shape and creamy white to white in colour. The quality score must be five or greater and the density score two or greater. An acceptable size for broccoli heads was between 5 and 20 cm in diameter and the head should be a green colour with no purple tinges. The quality score for broccoli must be five or greater and density score two or greater.

Density scores were allocated according to the following table. The quality scores are not presented in the results as they are used only to separate poor quality curds or heads in the grading data sheets from those that are of a high standard of quality. Varieties that had a large proportion of high quality curds/heads have had this noted in the results section.

Table 3: Density scoring system for cauliflower and broccoli.

Broccoli	Cauliflower
1 = Very open head	1 = Very open curd
2 = Reasonable density (head is closed and floret stems in middle of the head cannot be easily seen)	2 = Reasonable density (florets closed but not very close to stem underneath)
3 = Very tight head (no floret stems in the middle of the head can be seen)	3 = Very tight closed curd (florets curved underneath close to stem)

Storage of Product

Cauliflower curds of a high quality standard were placed in cool store at 1°C for 15 days. Prior to storage the curds were wrapped in paper and placed in a cardboard box. After 15 days cool store the curds were removed and re-graded for after-storage quality. Broccoli heads were not assessed for storage quality.

Results

The varieties were assessed prior to harvest, at harvest and post storage. The yielding potential and vigour of some of the broccoli varieties may have been reduced due to a suspected wireworm infestation and wind damage.

Table 4: Pre-harvest characteristics of cauliflower and broccoli.

Cauliflower variety	Vigour * (1 – 5)	% Sibs at 10 weeks after transplanting#	No. of covers required before harvest^	Comments@
Boris	4.5	6	1	Medium sized upright plant frame. Average wrapper.
Cheers	5	6	0	Medium to large sized upright plant frame. Reasonable wrapper.
CLF 4726	4	4	0	Small to medium sized plant frame. Reasonable wrapper.
CLF 4727	4.5	4	0	Medium sized upright plant frame. Good wrapper.
Dulis	4	8	1	Small to medium sized plant frame. Average wrapper.
Locris	4	6	1	Small to medium sized plant frame. Average wrapper.
Salute	5	6	1	Medium to large sized upright plant frame. Average wrapper.
TCF 2806	5	2	0	Large and broad/open plant frame. Average wrapper.
WA05 - 2	3.5	4	1	Reduced frame size possibly due to water logging.

Cauliflower variety	Vigour * (1 – 5)	% Sibs at 10 weeks after transplanting[#]	No. of covers required before harvest^	Comments[@]
WA05 - 4	3	4	1	Average wrapper. Reduced frame size possibly due to water logging. Reasonable wrapper.
Virgin - control	5	4	0	Medium to large upright plant frame. Very good wrapper.

Broccoli variety	Vigour * (1 – 5)	% Sibs at 10 weeks after transplanting[#]	No. of covers required before harvest^	Comments
BR 473	5	6	na	
BRC 5757	4.5	4	na	
CLX 3502	5	6	na	
WA 05 - 1B	2.5	4	na	
Ironman - control	3	0	na	

* 1 = low vigour (less growth)
5 = high vigour (greatest growth)

[#] Seed was supplied as trial samples only and may not be subject to normal quality checks.

^ The number of covers prior to harvest indicates those varieties that require covering in addition to the covering procedure carried out during harvest.

[@] Wrapping ability refers to the ability of inner heart leaves to self-cover the developing curd from exposure to the sun.

Table 5: Maturity times, spread of harvest and total and marketable yield of cauliflower and broccoli at harvest.

Cauliflower variety	Days from transplant to first harvest	Number of picks required (total yield)	Total Yield (t/ha)*	Marketable Yield (t/ha) #	Difference between total and marketable yield (t/ha)
Boris	96	5	23.2	22.4	0.8
Cheers	102	4	25.1	24.0	1.1
CLF 4726	105	3	22.5	21.6	0.9
CLF 4727	105	3	23.7	22.5	1.2
Dulis	96	5	17.8	15.0	2.8
Locris	96	4	22.1	20.3	1.8
Salute	105	3	22.2	16.2	6.0
TCF 2806	105	2	28.0	27.4	0.6
WA05 - 2	96	5	22.0	20.7	1.3
WA05 - 4	96	4	19.3	17.1	2.2
Virgin - control	105	3	29.1	25.7	3.4

Broccoli Variety^	Days from transplant to first harvest	Number of picks required (total yield)	Total Yield (t/ha)*	Marketable Yield (t/ha) #	Difference between total and marketable yield (t/ha)
BR 473	96	2	10.9	9.3	1.6
BRC 5757	92	3	9.4	8.3	1.1
CLX 3502	92	3	9.6	6.3	3.3
WA 05 - 1B	92	3	5.4	3.9	1.5
Ironman - control	99	1	6.6	4.9	1.7

^ Please note that broccoli yields may have been reduced due to a suspected wireworm infestation and wind damage.

* Yields may be greater in trials than commercial practice due to all curds/heads being picked. Curds/heads that mature early or late compared to the main harvest period may not be included in commercial yield estimates.

Yield when curds/heads not suitable for market are removed.

Table 6: Characteristics of cauliflower and broccoli at harvest.

Cauliflower variety	Average marketable curd weight (g)	Average marketable curd diameter (cm)	Density^	Colour*
Boris	819.5	15.4	2.8	Creamy
Cheers	872.6	15.6	2.5	Off white
CLF 4726	762.1	14.5	3.0	Off white
CLF 4727	815.6	15.0	2.9	Off white
Dulis	685.5	14.2	2.6	Creamy
Locris	785.2	15.2	2.5	White
Salute	786.9	15.3	2.0	White
TCF 2806	923.8	17.3	2.7	Creamy
WA05 - 2	738.7	13.9	2.9	Creamy
WA05 - 4	755.3	15.1	2.6	Creamy
Virgin - control	1006.6	15.7	2.8	White

Broccoli variety	Average marketable head weight (g)	Average marketable head diameter (cm)	Density^	Colour
BR 473	262.6	10.8	2.9	Dark green
BRC 5757	249.9	11.3	2.4	Green
CLX 3502	310.8	11.9	1.9	Green
WA 05 - 1B	226.5	10.2	2.0	Green
Ironman - control	207.5	9.9	2.6	Green

^ Average density of total yield.

* Off white describes a curd that has a slightly creamy colour although it is predominately white.

Table 7: Percentage (%) of total yield picked at each harvest*.

Cauliflower variety	3 Oct (96 DAT)	6 Oct (99 DAT)	9 Oct (102 DAT)	12 Oct (105 DAT)	16 Oct (109 DAT)	19 Oct (112 DAT)	Total
Boris	4	14	24	44	14		100
Cheers			1	39	55	5	100
CLF 4726				5	47	48	100
CLF 4727				6	27	67	100
Dulis	7	12	22	43	16		100
Locris	6	16	28	50			100
Salute				9	86	5	100
TCF 2806				47	53		100
WA05 - 2	4	6	12	44	34		100
WA05 - 4	11	21	25	43			100
Virgin - control				8	78	14	100

Broccoli variety	29 Sep (92 DAT)	3 Oct (96 DAT)	6 Oct (99 DAT)	Total
BR 473		14	86	100
BRC 5757	20	21	59	100
CLX 3502	9	55	36	100
WA 05 - 1B	2	8	90	100
Ironman - control			100	100

* The percentage of yield picked at each harvest has been averaged for the two replicates of each variety.

(DAT) Number of days after transplanting.

Table 8: Cauliflower curd and broccoli head comments

Cauliflower variety	Comments (Harvest)	Comments (Post-storage)*
Boris	Good harvest quality. Minor reduction in marketable yield due to yellowing and reduced curd size.	Minor loss of post storage quality due to reduction in curd firmness.
Cheers	Good harvest quality. Marketable yield reduced due to minor amount of curd yellowing.	Minor cell collapse.
CLF 4726	Good harvest quality. Minor reduction in marketable yield due to yellowing and reduced curd size.	Minor cell collapse.
CLF 4727	Good harvest quality. Minor reduction in marketable yield due to irregular curd shape (lumpy).	Minor loss of post storage quality due to reduction in curd firmness and cell collapse.
Dulis	Reasonable harvest quality. Marketable yield reduced by yellowing and small curd size.	Minor loss of post storage quality due to reduction in curd firmness.
Locris	Good harvest quality. Minor reduction in marketable yield due to yellowing and reduced curd size.	Minor loss of post storage quality due to reduction in curd firmness.
Salute	Reasonable harvest quality. Marketable yield reduced by yellowing and presence of low density curds.	Substantial loss of post storage quality due to reduction in curd firmness.
TCF 2806	Very good harvest quality. Minor reduction in marketable yield due to the presence of low density curds.	Excellent post storage quality.
WA05 - 2	Good harvest quality. Minor reduction in marketable yield due to yellowing and reduced curd size. Yield and vigour may have been impaired due to waterlogging.	Excellent post storage quality.
WA05 - 4	Reasonable harvest quality. Marketable yield reduced by presence of smaller curds. Yield and vigour may have been impaired due to waterlogging.	Minor loss of post storage quality due to reduction in curd firmness.
Virgin - control	Very good harvest quality. Minor reduction in marketable yield due to the presence of off-types.	Minor loss of post storage quality due to reduction in curd firmness and cell collapse.

Broccoli variety	Comments (Harvest)	Comments (Post-storage)*
BR 473	Good harvest quality. Minor reduction in marketable yield due to presence of smaller heads and leaf in the head.	na
BRC 5757	Good harvest quality. Minor reduction in marketable yield due to presence of smaller heads and leaf in the head.	na
CLX 3502	Reasonable harvest quality. Marketable yield reduced by the presence of low density heads and an uneven dome shape.	na
WA 05 - 1B	Reasonable harvest quality. Marketable yield reduced due to presence of smaller heads.	na
Ironman - control	Reasonable harvest quality. Marketable yield reduced due to presence of smaller heads.	na

* Collapse is the breakdown of individual 'flowers' within a floret. Discolouration of the affected 'flowers' has not yet occurred. Deterioration is the next stage from cell collapse, when the individual 'flowers' have started to turn brown or black.

Appendix 1

Weather records at Manjimup Horticultural Research Institute (June – October 2006)

Monthly weather summary – June 2006

	Temperature		Evaporation	Rain	
Date	**Max**	**Min**	**mm**	**mm**	**Comment**
1-Jun-06	14.7	6.1	1.3	0.2	Fog, fine, mild
2-Jun-06	14.0	7.5	1.7	0.2	Fine, mild
3-Jun-06	15.0	6.5	2.0	0.0	Fine, mild
4-Jun-06	15.5	5.3	1.9	0.0	Fine, mild
5-Jun-06	16.3	7.2	2.5	0.0	Frost, fine, mild
6-Jun-06	18.0	7.3	2.5	0.0	Light frost, fine, mild
7-Jun-06	18.5	6.8	2.3	4.8	Overnight rain, fine, mild
8-Jun-06	12.6	2.8	1.7	0.2	Frost, fine, cool
9-Jun-06	11.7	4.7	1.3	0.4	Fog, fine, cool
10-Jun-06	13.2	6.7	1.4	0.0	Fine, cool
11-Jun-06	12.1	6.2	0.9	0.0	Fine, cool
12-Jun-06	15.5	7.0	2.3	0.2	Overcast, mild, overnight rain
13-Jun-06	16.6	8.3	1.4	4.2	Overcast, mild
14-Jun-06	12.3	6.4	0.6	0.0	Fine, cool
15-Jun-06	16.8	6.3	2.3	0.0	Frost, fine, mild
16-Jun-06	15.2	3.2	2.4	0.0	Frost, fine, mild
17-Jun-06	14.2	2.7	2.5	0.0	Frost, fine, mild
18-Jun-06	15.8	9.1	2.0	0.0	Fine, mild
19-Jun-06	16.9	9.8	1.8	0.0	Overcast, mild, overnight rain
20-Jun-06	15.1	8.5	0.6	11.2	
21-Jun-06	12.6	8.3	1.0	0.0	Fine, cool, overnight drizzle
22-Jun-06	13.3	5.6	1.1	1.6	Fog, fine, cool
23-Jun-06	13.1	4.9	0.9	0.0	Fine, cool
24-Jun-06	15.5	4.5	1.9	0.4	Fine, mild
25-Jun-06	16.2	7.1	2.5	0.0	Frost, mild, overnight drizzle
26-Jun-06	16.1	7.2	1.4	2.8	Overcast, mild, overnight rain
27-Jun-06	13.0	7.6	0.9	0.4	Overcast cool, overnight rain
28-Jun-06	15.3	6.1	0.9	15.8	Overcast, mild
29-Jun-06	11.7	6.2	0.8	0.0	Overcast cold
30-Jun-06	13.8	11.2	1.4	0.0	Overcast, cool, overnight rain

Monthly weather summary – July 2006

Date	Temperature Max	Min	Evaporation mm	Rain mm	Comment
1 Jul 06	15.6	7.3	0.7	8.2	AM drizzle, fine, mild
2 Jul 06	13.4	4.7	0.9	0.2	Fine, mild
3 Jul 06	16.3	10.6	1.7	0.8	Rain
4 Jul 06	16.4	9.1	0.6	3.4	Overcast, mild, overnight drizzle
5 Jul 06	14.4	8.7	1.6	0.2	Overcast, mild
6 Jul 06	15.1	6.7	1.0	0.0	Fog, fine, mild
7 Jul 06	16.2	9.0	2.2	0.2	Fine, mild
8 Jul 06	17.7	9.5	2.3	0.0	Windy, late rain
9 Jul 06	19.3	9.3	2.5	7.6	Windy, cloudy, rain
10 Jul 06	13.3	3.6	1.0	6.0	Cool, wet, hail
11 Jul 06	11.9	5.1	1.0	5.4	Overcast, cold, drizzle
12 Jul 06	10.8	3.5	1.4	0.0	Fog, windy, overcast, cold
13 Jul 06	11.3	4.7	1.4	0.2	Fog, mild, overnight rain
14 Jul 06	13.3	9.3	1.2	2.4	Overcast, cool
15 Jul 06	12.1	6.4	0.5	0.2	Fine, cool
16 Jul 06	14.3	6.2	1.9	0.0	Fine, mild
17 Jul 06	15.4	6.3	2.3	0.0	Frost, fine, mild
18 Jul 06	14.4	5.7	2.2	0.0	Frost, fine, mild
19 Jul 06	16.6	6.1	2.7	0.0	Frost, fine, mild
20 Jul 06	15.8	6.3	2.4	0.0	Frost, rain PM
21 Jul 06	12.8	5.1	0.1	37.0	Overcast, cool, light drizzle
22 Jul 06	9.9	6.5	1.2	0.4	Fine, cold
23 Jul 06	10.7	4.4	0.9	0.2	Fine, cold
24 Jul 06	14.8	9.7	2.1	1.6	Rain, mild
25 Jul 06	11.8	4.7	0.3	19.6	Cloudy, cold
26 Jul 06	13.7	7.2	1.5	0.4	Cloud, cool
27 Jul 06	15.0	10.0	1.0	7.0	Windy, rain, mild
28 Jul 06	7.9	3.2	0.1	16.8	Drizzle, cold
29 Jul 06	11.0	7.3	1.1	0.6	Cloudy, cool
30 Jul 06	14.5	7.9	1.6	0.4	Showers, mild
31 Jul 06	15.2	8.8	1.4	0.2	Rain, mild

Monthly weather summary – August 2006

Date	Temperature Max	Min	Evaporation mm	Rain mm	Comment
1-Aug-06	12.9	4.8	1.0	6.4	Windy, rain, cool
2-Aug-06	13.7	7.2	1.7	6.8	Overcast, drizzle, cool
3-Aug-06	15.0	9.3	1.5	0.2	Cloudy, mild
4-Aug-06	17.6	10.7	2.1	0.2	Showers developing, mild
5-Aug-06	17.5	10.4	1.7	2.4	Cloudy, mild
6-Aug-06	18.4	12.7	2.1	2.2	Rain, overnight gales, mild
7-Aug-06	19.2	12.6	1.6	15	Rain, wind, mild
8-Aug-06	15.0	6.2	1.4	16.4	Showers, wind, mild
9-Aug-06	11.3	4.9	1.5	1.6	Cloudy, cool
10-Aug-06	14.7	6.0	1.9	0.2	Fine, mild
11-Aug-06	16.6	6.4	2.7	0.0	Wind increasing, cloudy, mild
12-Aug-06	15.6	11.4	1.8	12.6	Overnight rain, mild
13-Aug-06	14.7	7.7	1.5	3.0	Isolated showers, mild
14-Aug-06	13.2	6.7	1.9	0.2	Overcast, windy, cool
15-Aug-06	16.8	9.8	2.0	7.6	Overnight gales, showers, mild
16-Aug-06	12.1	5.0	1.2	8.4	Overcast, cool
17-Aug-06	10.9	7.2	1.6	0.2	Overcast, cool
18-Aug-06	12.7	6.4	1.6	0.0	Windy cloud, cool
19-Aug-06	16.6	9.7	1.8	11.0	Overnight showers, mild
20-Aug-06	17.3	9.4	2.9	7.2	Showers, mild
21-Aug-06	14.6	8.8	1.7	0.0	Cloud increasing, overnight rain
22-Aug-06	17.8	10.3	2.1	22.8	Rain, mild
23-Aug-06	14.8	10.1	1.1	20.0	Cloudy, mild, isolated showers
24-Aug-06	16.0	7.4	2.2	0.0	Cloudy, mild, overnight showers
25-Aug-06	17.3	10.5	2.1	2.8	Showers, mild
26-Aug-06	13.3	6.3	1.6	0.2	Cloudy, cool
27-Aug-06	14.2	7.8	1.6	0.2	Cloudy, cool
28-Aug-06	15.8	7.7	2.0	0.0	Fine, mild
29-Aug-06	20.2	10.1	4.0	0.0	Fine, mild
30-Aug-06	22.2	12.1	4.2	0.0	Windy, cloudy, mild
31-Aug-06	19.0	11.4	2.6	11.0	Cloudy, cool

Monthly weather summary – September 2006

Date	Temperature Max	Min	Evaporation mm	Rain mm	Comment
1-Sep-06	14.0	3.6	2.0	3.8	Cloudy, mild
2-Sep-06	13.1	4.0	2.4	1.0	Cloudy, mild
3-Sep-06	13.5	8.6	1.7	0.0	Cloudy, mild, overnight showers
4-Sep-06	14.8	7.6	1.9	6.2	Showers, mild
5-Sep-06	10.4	3.2	2.0	2.6	Windy, overcast, cold
6-Sep-06	11.4	6.0	1.9	0.0	Windy, overcast, cold
7-Sep-06	12.5	7.4	1.8	0.0	Windy, overcast, cool
8-Sep-06	15.3	9.1	3.8	0.0	Windy. overcast, mild
9-Sep-06	14.7	10.6	1.7	0.0	Cloudy, mild
10-Sep-06	20.1	14.6	2.4	1.2	Cloudy, mild, overnight rain
11-Sep-06	18.6	11.1	1.5	5.4	Showers, mild
12-Sep-06	12.4	5.8	2.2	17.8	AM showers, cool
13-Sep-06	13.4	6.5	2.5	0.0	Cloudy, mild
14-Sep-06	15.5	5.7	2.1	0.0	Fine, mild
15-Sep-06	21.1	9.3	4.4	0.2	Fine, warm
16-Sep-06	24.6	11.0	3.0	0.0	Fine, warm
17-Sep-06	18.3	7.2	3.3	1.0	Windy, showers, mild
18-Sep-06	16.5	8.6	2.5	7.2	Showers, mild
19-Sep-06	12.7	6.5	2.0	3.2	Overcast, cool, overnight rain
20-Sep-06	14.2	9.8	2.4	2.0	Cloudy, overnight showers
21-Sep-06	16.6	11.8	2.8	3.8	Windy, showers, mild
22-Sep-06	12.9	6.3	2.1	6.2	Drizzle, cool
23-Sep-06	13.9	10.1	2.2	2.2	Drizzle, cloudy, mild
24-Sep-06	14.8	7.9	3.1	0.8	Fine, mild
25-Sep-06	17.5	8.4	3.8	0.0	Showers, mild
26-Sep-06	17.2	7.9	2.2	4.6	Cloudy, mild
27-Sep-06	13.9	7.7	1.7	0.0	Cloudy, mild
28-Sep-06	17.7	8.3	3.0	0.0	Fine, mild
29-Sep-06	20.9	7.6	5.2	0.0	Fine, warm
30-Sep-06	26.5	11.2	5.5	2.0	Showers, warm

Monthly weather summary – October 2006

Date	Temperature Max	Min	Evaporation mm	Rain mm	Comment
1-Oct-06	17.1	7.9	3.8	0.2	Cloudy, mild
2-Oct-06	19.1	7.7	4.3	0.0	Fine, warm
3-Oct-06	21.8	10.5	4.6	4.0	Heavy showers, cool change
4-Oct-06	14.8	7.1	2.7	22.2	Fine, mild
5-Oct-06	16.4	8.6	4.8	0.0	Fine, mild
6-Oct-06	20.7	8.8	5.0	0.0	Fine, warm
7-Oct-06	20.6	6.4	5.2	1.0	Fine, warm
8-Oct-06	14.7	5.6	4.9	0.0	Fine, mild
9-Oct-06	17.7	8.1	5.9	0.0	Fine, mild
10-Oct-06	22.9	8.9	5.8	0.0	Fine, warm, overnight change
11-Oct-06	22.3	10.0	5.4	6.0	Squalls, rain, warm
12-Oct-06	13.0	8.2	2.5	7.2	Showers, cool
13-Oct-06	14.1	6.6	2.2	3.6	Overcast, mild
14-Oct-06	15	8.4	3.0	0.0	Cloudy, mild
15-Oct-06	16.9	7.9	4.4	0.2	Cloudy, mild
16-Oct-06	20.0	9.1	3.8	1.6	Showers, warm
17-Oct-06	14.8	6.1	3.6	0.6	Drizzle, mild
18-Oct-06	14.9	11.1	2.5	0.8	Partly cloudy, mild
19-Oct-06	20.6	8.8	4.6	0.0	Fine, warm
20-Oct-06	19.9	9.3	5.3	0.0	Fine, mild
21-Oct-06	22.8	12	6.5	0	Fine, warm
22-Oct-06	27.9	13.2	5.5	0.4	Cloudy, warm
23-Oct-06	17.4	10.3	1.5	0.4	Cloudy, mild
24-Oct-06	15.3	7.2	2.8	0.0	Windy, fine, mild
25-Oct-06	16.8	6.1	4.3	0.0	Windy, fine, mild
26-Oct-06	19.7	8.9	5.9	0.0	Cloudy, mild
27-Oct-06	18.4	9.9	5.0	0.0	Fine, mild
28-Oct-06	22.0	10.1	4.9	0.0	Fine, warm
29-Oct-06	26.4	13.3	5.0	0.0	Fine, warm
30-Oct-06	19.2	8.4	3.6	0.0	Fine, mild
31-Oct-06	18.4	9.1	3.0	0.0	Overcast, mild

Appendix 2

Seed company details:

Cauliflower Variety	Seed Company	Contact Person	Mobile Number
Boris	South Pacific Seeds	Tim Aldridge	0417 934 768
Cheers	Syngenta Seeds	Kevin Gugiatti	0408 499 990
CLF 4726	Lefroy Valley	Alek Moreno	0418 914 714
CLF 4727	Lefroy Valley	Alek Moreno	0418 914 714
Dulis	South Pacific Seeds	Tim Aldridge	0417 934 768
Locris	South Pacific Seeds	Tim Aldridge	0417 934 768
Salute	Syngenta Seeds	Kevin Gugiatti	0408 499 990
TCF 2806	Terranova	Graham Adams	0417 930 233
WA05 - 2	Rijk Zwaan	Dusanka Milunovic	0439 330 123
WA05 - 4	Rijk Zwaan	Dusanka Milunovic	0439 330 123
Virgin - control	Syngenta Seeds	Kevin Gugiatti	0408 499 990

Broccoli Variety	Seed Company	Contact Person	Mobile Number
BR 473	Syngenta Seeds	Kevin Gugiatti	0408 499 990
BRC 5757	Lefroy Valley	Alek Moreno	0418 914 714
CLX 3502	Clause Tezier	Larry Giles	0437 802 004
WA 05 - 1B	Rijk Zwaan	Dusanka Milunovic	0439 330 123
WA 05 - 2B	Rijk Zwaan	Dusanka Milunovic	0439 330 123
Ironman - control	Seminis	John McBride	0400 934 706

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- ***Rijk Zwaan***
- ***South Pacific Seeds***
- ***Springall Nursery***
- ***Syngenta***
- ***Terranova Seeds***
- ***Warren Cauliflower Group (Inc)***

Important Disclaimer

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This document has been prepared from a cauliflower and broccoli variety evaluation trial conducted at the Manjimup Horticultural Research Institute, South Western Highway, Manjimup WA 6258. The results reflect the growth characteristics, yield, quality and density of the cauliflower and broccoli varieties as recorded at this site during the conditions of the growing period (June – October 2006).

Variations in the characteristics of the cauliflower and broccoli varieties may occur during other growth period, locations and management programs. The availability of the document does not imply suitability to other areas, growth periods or management programs and any interpretation is the responsibility of the user.

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