



Evaluation of cauliflower and broccoli varieties

**Summer Planting
(November 2005 - February 2006)**



Manjimup Horticultural Research Institute
Department of Agriculture & Food
Western Australia

Introduction

This report is the first in a series of four produced from the evaluation of cauliflower and broccoli varieties conducted at the Manjimup Horticultural Research Institute.

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.

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	23 November 2005	27 January 2006	17 February 2006
Broccoli	23 November 2005	24 January 2006	27 January 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
23 November 2005	Summit Spud	1500 kg/ha	Incorporated at planting
23 November 2005	All Phos	100 kg/ha	Incorporated at planting
26 November 2005	Ammonium nitrate	75 kg/ha	Foliar application
30 November 2005	Ammonium nitrate	100 kg/ha	Foliar application
7 December 2005	Soluble Boron	18 kg/ha	Foliar application
7 December 2005	Sodium molybdate	1 kg/ha	Foliar application
7 December 2005	Zinc sulphate	28 kg/ha	Foliar application
9 December 2005	Urea	150 kg/ha	Foliar application
19 December 2005	Urea	150 kg/ha	Foliar application
29 December 2005	Calcium nitrate	150 kg/ha	Foliar application
9 January 2005	Calcium nitrate	150 kg/ha	Foliar application
19 January 2005	Calcium nitrate	100 kg/ha	Foliar application

Planting

Cauliflower and broccoli were planted at 40cm spacing between plants within rows. All varieties were grown in 5.1m x 6m plots, with 80cm between rows (two rows per 1.7m bed) and were surrounded by a buffer variety. At harvest, 5m of the four inner rows of each 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 21.2°C in November, 24.3°C in December, 26.3°C in January and 26.5°C in February. 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.

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

At harvest leaves were removed from cauliflower curds and broccoli heads prior to grading and storage. Harvesting occurred every three 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 20cm in diameter and 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 as used for export curds. 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 at harvest and post storage.

Table 4: Total and marketable yield of cauliflower and broccoli at harvest

Cauliflower Variety	Total Yield (t/ha)*	Marketable Yield (t/ha)#	Difference between total and marketable yield (t/ha)
Boris	31.87	20.68	11.19
Celsius	32.24	28.30	3.94
CLF 4282	23.45	8.75	14.70
CLX 33228	31.35	16.41	14.94
CLX 33241	32.26	27.31	4.95
CLX 37243	31.33	24.96	6.37
Dulis	26.84	12.88	13.96
Locris	31.46	21.11	10.35
Moby	30.09	20.15	9.94
Nova (L3368)	32.44	21.58	10.86
Regina	30.88	6.49	24.39
Sergeant	28.66	8.05	20.61
TCF 2800	27.43	1.48	25.95
Victory	28.38	6.29	22.09
WA 05 - 1	32.07	24.30	7.77
WA 05 - 2	34.63	18.79	15.84
WA 05 - 3	35.31	29.01	6.29
WA 05 - 4	32.28	16.63	15.66
Whistler	27.80	5.25	22.55
SummerLove - Control	28.88	26.57	2.31

Broccoli Variety	Total Yield (t/ha)*	Marketable Yield (t/ha)#	Difference between total and marketable yield (t/ha)
Resolute	11.06	9.24	1.82
WA 05 - 1B	14.63	12.88	1.75
WA 05 - 2B	17.08	16.28	0.81
Viper - Control	13.80	11.70	2.10

* Yields may be greater in trials than commercial practice due to all curds being picked. Curds 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 5: Characteristics of cauliflower and broccoli at harvest

Cauliflower variety	Number of covers required before harvest *	Number of picks required (Total yield)	Days from transplant to first harvest [^]	Average marketable curd weight (g)	Average marketable curd diameter (cm)
Boris	1	3	65	1104.0	16.3
Celsius	1	4	63	1091.9	15.9
CLF 4282	1	3	58	849.9	15.0
CLX 33228	1	3	60	961.0	15.8
CLX 33241	1	5	65	1142.2	17.4
CLX 37243	1	4	65	1100.2	16.0
Dulis	1	5	60	944.6	15.6
Locris	1	4	60	1064.4	16.5
Moby	1	3	63	1061.8	16.6
Nova (L3368)	1	3	65	1049.2	15.8
Regina	1	4	62	973.9	15.3
Sergeant	1	3	58	998.9	15.5
TCF 2800	1	3	60	830.7	14.4
Victory	1	3	56	951.2	15.8
WA 05 – 1	1	2	67	1065.9	16.3
WA 05 – 2	1	3	60	1062.2	15.6
WA 05 – 3	1	2	67	1159.7	16.3
WA 05 – 4	1	5	60	1100.0	16.9
Whistler	1	4	58	879.4	15.3
SummerLove – control	1	4	67	1002.8	16.4

Broccoli variety	Number of covers required before harvest *	Number of picks required (Total yield)	Days from transplant to first harvest [^]	Average marketable head weight (g)	Average marketable head diameter (cm)
Resolute	n/a	1	56	358.3	12.7
WA 05 – 1B	n/a	1	56	491.0	14.5
WA 05 – 2B	n/a	2	55	544.5	15.5
Viper - Control	n/a	1	56	394.4	12.9

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

[^] Days from transplant to first harvest have been averaged for the two replicates of each variety.

Table 6: Percentage (%) of total yield picked at each harvest*.

Cauliflower Variety	24 Jan (53 DAT)	27 Jan (56 DAT)	31 Jan (60 DAT)	3 Feb (63 DAT)	7 Feb (67 DAT)	10 Feb (70 DAT)	14 Feb (74 DAT)	17 Feb (77 DAT)	Total
Boris				8	57	35			100
Celsius				2	48	29	21		100
CLF 4282		12	76	12					100
CLX 33228			62	7	31				100
CLX 33241				2	2	8	22	66	100
CLX 37243				2	28	36	34		100
Dulis			30	10	46	4	10		100
Locris			15	9	43	33			100
Moby				18	64	18			100
Nova (L3368)				4	77	19			100
Regina			18	33	41	8			100
Sergeant		4	53	43					100
TCF 2800			17	36	47				100
Victory		60	22	18					100
WA 05 – 1					46	54			100
WA 05 – 2			27	41	32				100
WA 05 – 3					54	46			100
WA 05 – 4		4	10	18	50	18			100
Whistler		8	53	33	6				100
SummerLove - Control					7	23	47	23	100

Broccoli Variety	24 Jan (53 DAT)	27 Jan (56 DAT)	31 Jan (60 DAT)	3 Feb (63 DAT)	7 Feb (67 DAT)	10 Feb (70 DAT)	14 Feb (74 DAT)	17 Feb (77 DAT)	Total
Resolute		100							100
WA 05 – 1B		100							100
WA 05 – 2B	14	86							100
Viper-Control		100							100

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

DAT = Days after transplanting.

Table 7: Cauliflower curd and broccoli head density and comments

Cauliflower Variety	Density	Comments (Harvest)	Comments (Post-Storage)*
Boris	2.7	Marketable curds were of good quality and density. Loss of marketable yield was due to some curds being 'ricey' and 'furry'.	Good post storage quality.
Celsius	2.9	Very good harvest quality with dense curds. Small reduction in yield due to slight yellowing.	Very good post storage quality.
CLF 4282	3.0	The poor marketable yield for this variety was due to the majority of curds harvested being split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
CLX 33228	2.7	Marketable yield reduced by low density curds and splitting.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
CLX 33241	2.7	Good harvest quality with dense curds. Marketable yield reduced by some lumpy and 'furry' curds.	Very good post storage quality. No evidence of cell collapse, however a slight looseness of florets detected.
CLX 37243	3.0	Good quality, dense curds. Loss of marketable yield due to some 'furry' curds and some yellowing.	Average post storage quality.
Dulis	3.0	Marketable curds were of reasonable quality with good density. Unmarketable curds were 'furry' and split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
Locris	2.3	The marketable curds were of good quality with moderate to low density. Loss of marketable yield was due to some splitting.	Very good post storage quality.
Moby	2.6	Marketable curds were of reasonable quality with good density. Unmarketable curds were 'furry' and split.	Good post storage quality. Some cell collapse evident.
Nova (L3368)	3.0	Marketable curds were of reasonable quality with good density. Unmarketable curds were split and 'furry'.	Major cell collapse.
Regina	2.9	The poor marketable yield for this variety was due to the majority of curds harvested being split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
Sergeant	3.0	The poor marketable yield for this variety was due to the majority of curds harvested being split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.

Cauliflower Variety	Density	Comments (Harvest)	Comments (Post-Storage)*
TCF 2800	2.7	The poor marketable yield for this variety was due to the majority of curds harvested being split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
Victory	3.0	The poor marketable yield for this variety was due to the majority of curds harvested being split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
WA 05 – 1	2.9	Marketable curds were of good quality and density. Loss of marketable yield was due to some splitting and yellowing.	Excellent post storage quality.
WA 05 – 2	3.0	Marketable curds were of good quality and density. Loss of marketable yield was due to splitting.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
WA 05 – 3	2.9	Very good harvest quality with dense curds. Reduction in marketable yield due to some splitting.	Average post storage quality.
WA 05 – 4	2.8	Marketable curds were of reasonable quality with good density. Unmarketable curds were 'furry' and split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
Whistler	2.9	The poor marketable yield for this variety was due to the majority of curds harvested being split.	Insufficient marketable curd numbers at each pick to undertake storage assessment.
SummerLove - Control	2.9	Marketable curds were of good quality and density. Small reduction in yield due to some insect damage and slight yellowing.	Good post storage quality. Minor cell collapse and loss of firmness.

Broccoli Variety	Density	Comments (Harvest)	Comments (Post-Storage)*
		Marketable heads of good quality and density. Reduction in marketable yield due to an uneven dome shape.	n/a
Resolute	3.0	Marketable heads of good quality and density.	n/a
WA 05 – 1B	3.0	Marketable heads of very good quality and density.	n/a
WA 05 – 2B	3.0	Marketable heads of good quality and density. A few heads with an uneven dome shape.	n/a
Viper - Control	3.0		

* 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 (November 2005 – February 2006)

Monthly weather summary – November 2005

Date	Temperature		Evaporation mm	Rain mm	Comment
	Max	Min			
1-Nov-05	14.3	4.8	3.9	1.0	Showers Clearing Cool
2-Nov-05	13.3	2.8	4.2	0.0	Fine Cool
3-Nov-05	17.7	5.3	5.7	0.0	Cloudy Mild
4-Nov-05	17.9	9.5	4.1	0.2	Windy Cloudy Mild
5-Nov-05	17.3	8.2	2.9	11.2	Showers Mild
6-Nov-05	13.5	6.0	3.9	0.4	Cloudy Mild
7-Nov-05	16.9	6.9	3.9	0.0	Showers Increasing Mild
8-Nov-05	17.7	5.5	3.3	10.8	Showers Mild
9-Nov-05	14.3	7.1	4.8	1.8	Cloudy Cool
10-Nov-05	15.8	5.9	5.6	0.2	Showers Developing Mild
11-Nov-05	19.3	10.0	5.6	2.0	AM Drizzle Mild
12-Nov-05	19.5	8.1	4.4	0.2	Cloudy Mild
13-Nov-05	22.1	8.7	4.8	0.0	Cloudy Mild
14-Nov-05	18.1	8.6	4.1	0.0	Fine Mild
15-Nov-05	19.9	8.7	7.3	0.0	Fine Mild
16-Nov-05	29.3	12.7	7.6	0.0	Cloud Increasing
17-Nov-05	22.9	9.7	5.3	0.6	Cloudy Mild
18-Nov-05	18.0	6.9	5.9	0.0	Fine Mild
19-Nov-05	19.9	6.7	6.8	0.0	Fine Mild
20-Nov-05	25.3	10.9	6.6	0.0	Cloudy Warm
21-Nov-05	19.0	7.8	5.6	0.0	Windy Fine Mild
22-Nov-05	20.1	10.0	6.9	0.0	Windy Fine Mild
23-Nov-05	23.4	12.7	5.9	0.0	Fine Mild
24-Nov-05	23.1	11.6	6.3	0.0	Cloudy Mild
25-Nov-05	21.3	8.0	6.3	0.0	Cloudy Mild
26-Nov-05	17.1	5.9	5.8	0.0	Windy Cloudy Mild
27-Nov-05	19.1	9.2	5.7	20.4	Thunderstorms Mild
28-Nov-05	20.8	11.2	3.8	0.4	Overcast Mild
29-Nov-05	18.2	10.7	1.9	2.2	Cloudy Mild Shower
30-Nov-05	15.5	8.1	3.8	1.8	Overcast Mild

Monthly weather summary – December 2005

Date	Temperature		Evaporation mm	Rain mm	Comment
	Max	Min			
1-Dec-05	15.3	7.5	3.2	0.0	Fine Mild
2-Dec-05	19.4	7.7	6.0	0.0	Fine Mild
3-Dec-05	22.8	11.8	6.6	0.2	Cloudy Mild
4-Dec-05	17.7	12.0	4.4	0.4	Showers Mild
5-Dec-05	18.4	9.1	3.7	1.2	Showers Mild
6-Dec-05	14.6	7.1	3.6	8.2	Overcast Cool
7-Dec-05	14.3	9.7	2.4	1.0	Drizzle Cool
8-Dec-05	17.3	9.2	4.1	0.2	Showers Cool
9-Dec-05	16.8	7.3	3.1	1.6	Cloudy Mild
10-Dec-05	20.0	10.4	5.6	0.0	Windy Cloudy Mild
11-Dec-05	20.3	9.3	4.4	4.0	Showers Mild
12-Dec-05	14.4	7.7	4.2	4.4	Overcast Drizzle
13-Dec-05	15.1	9.7	3.1	1.0	Cloudy Mild
14-Dec-05	20.0	9.9	5.0	0.2	Overcast Shower Mild
15-Dec-05	15.3	5.9	2.6	0.4	Cloudy Mild Overnight Drizzle
16-Dec-05	18.6	12.2	4.8	0.8	Cloudy Mild
17-Dec-05	22.0	12.7	5.6	0.0	Fine Mild
18-Dec-05	26.6	13.5	7.6	0.0	Fine Warm
19-Dec-05	26.4	12.4	7.7	0.0	Fine Warm Cloud Developing
20-Dec-05	25.2	12.6	6.9	0.2	Fine Warm
21-Dec-05	19.3	7.9	6.2	0.0	Windy Cloudy Showers Developing
22-Dec-05	22.6	10.2	6.9	0.0	Showers Overcast Mild
23-Dec-05	19.0	7.9	3.6	9.0	Fine Mild
24-Dec-05	16.2	7.6	5.3	0.0	Cloudy Mild
25-Dec-05	20.8	10.0	6.6	0.0	
26-Dec-05	24.3	11.3	6.7	0.0	
27-Dec-05	19.4	9.0	3.5	0.2	
28-Dec-05	20.9	12.6	6.3	0.0	
29-Dec-05	25.4	14.6	7.1	0.0	
30-Dec-05	20.8	9.6	2.8	0.6	
31-Dec-05	19.3	8.3	5.7	0.2	Cloudy Mild

Monthly weather summary – January 2006

Date	Temperature		Evaporation mm	Rain mm	Comment
	Max	Min			
1-Jan-06	16.6	6.8	4.4	0.0	Fine Mild
2-Jan-06	22.8	7.4	7.8	0.0	Fine Warm
3-Jan-06	27.5	11.9	7.8	2.6	Drizzle Overcast Warm
4-Jan-06	19.6	13.4	2.6	0.4	Cloudy Mild
5-Jan-06	24.5	14.3	6.5	0.0	Cloudy Warm
6-Jan-06	24.4	14.7	6.8	0.0	Fine Warm
7-Jan-06	30.2	15.8	7.1	0.0	Fine Hot
8-Jan-06	31.3	15.2	7.2	0.6	Overcast Drizzle
9-Jan-06	21.8	11.0	4.8	0.4	Cloudy Mild
10-Jan-06	20.5	8.7	6.7	0.0	Fine Mild
11-Jan-06	21.7	9.3	6.8	0.0	Fine Mild
12-Jan-06	27.7	12.0	8.3	0.0	Cloud Increasing Warm
13-Jan-06	25.3	13.0	4.5	2.4	AM Drizzle Windy Overcast Mild
14-Jan-06	18	13.9	1.9	0.0	Fine Mild
15-Jan-06	21.6	14.4	4.1	0.0	Fine Mild
16-Jan-06	29.1	14.6	7.5	0.0	Cloudy Hot
17-Jan-06	21.9	15.2	5.8	0.0	Cloudy Mild
18-Jan-06	28.5	16.2	4.8	0.0	Overcast Warm
19-Jan-06	19.8	11.9	1.9	0.2	Fine Mild
20-Jan-06	25.2	13.8	6.5	0.0	Fine Warm
21-Jan-06	26.7	10.6	6.0	0.0	Windy Cloudy Warm
22-Jan-06	19.7	8.2	4.5	0.0	Fine Mild
23-Jan-06	22.6	9.4	7.1	0.0	Fine Mild
24-Jan-06	28.5	13.1	8.4	0.0	Rain Developing Warm
25-Jan-06	26.7	16.5	2.3	15.2	Overcast Showers
26-Jan-06	18.6	8.9	0.8	3.4	Fine Mild
27-Jan-06	20.5	7.9	6.5	0.0	Fine Mild
28-Jan-06	21.8	10.3	6.2	0.0	Windy Cloudy Mild
29-Jan-06	17.5	7.7	3.4	0.0	Showers Mild
30-Jan-06	17.0	8.9	5.0	0.2	Cloudy Mild
31-Jan-06	18.5	7.4	4.0	0.2	Cloudy Mild

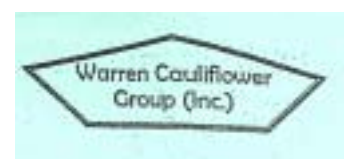
Monthly weather summary – February 2006

Date	Temperature		Evaporation mm	Rain mm	Comment
	Max	Min			
1-Feb-06	20.8	10.7	5.3	0.2	Cloudy Mild
2-Feb-06	21.0	8.3	5.1	0.0	Fine Mild
3-Feb-06	23.5	12.7	6.9	0.0	Fine Warm
4-Feb-06	27.6	14.5	7.4	0.0	Fine Hot
5-Feb-06	30.9	14.5	8.0	0.0	Fine Hot
6-Feb-06	24.3	11.5	7.3	0.0	Cloudy Humid Warm Overnight Rain
7-Feb-06	32.4	16.9	7.3	10.6	Overcast Warm Drizzle
8-Feb-06	21.9	11.5	4.3	0.4	Windy Overcast Mild
9-Feb-06	17.6	8.1	4.3	0.0	Fine Mild
10-Feb-06	24.8	9.7	7.5	0.0	Fine Warm
11-Feb-06	26.5	10.9	7.4	0.0	Fine Warm
12-Feb-06	27.6	11.0	6.4	0.0	Cloudy Warm
13-Feb-06	26.5	12.5	5.9	0.0	Fine Warm
14-Feb-06	32.1	18.1	7.5	0.0	Fine Hot
15-Feb-06	33.3	16.2	6.6	0.0	Drizzle Warm
16-Feb-06	17.2	12.7	1.4	2.4	Cloudy Mild
17-Feb-06	21.8	12.7	3.4	0.0	Cloudy Mild
18-Feb-06	20.4	10.1	3.3	0.0	Fine Mild
19-Feb-06	20.6	8.7	5.4	0.0	Fine Mild
20-Feb-06	24.1	9.0	6.8	0.0	Fine Warm
21-Feb-06	30.5	16.8	7.5	0.0	Fine Hot Thundery Showers
22-Feb-06	34.8	20.4	7.4	1.2	Cloudy Hot
23-Feb-06	29.1	13.7	5.6	0.0	
24-Feb-06	21.2	9.4	4.4	0.0	
25-Feb-06	20.9	8.8	5.1	0.0	
26-Feb-06	23.8	9.5	6.5	0.0	Fine Warm
27-Feb-06	31.1	14.4	7.1	0.0	Fine Hot
28-Feb-06	32.3	15.9	7.2	0.0	Fine Hot

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- *Syngenta*
- *Terranova Seeds*
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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 (November 2005 to February 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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