

TABLE 1a. The influence of canopy treatments, vine development and cordon height on the average canopy characteristics of Pinotage vines in climate region 4 (2003 - 2007).

Parameters	20 cm Bush vine		30 cm Bush vine		30 cm Trellis		60 cm Trellis	
	OC ¹	MC ²	OC	MC	OC	MC	OC	MC
Total marks allocation for description of canopy characteristics	62.4 b*	59.4 b	59.7 b	58.3 b	68.7 a	57.8 b	68.9 a	61.2 b
Canopy density (bunches)					1.31 b**	1.34 ab	1.28 b	1.43 a
Canopy density (leaf layers)					2.79 b	3.78 a	2.79 b	3.63 a
Total canopy density					4.10 b	5.22 a	4.07 b	5.06 a
% Shade bunches					83.1 b	91.8 a	85.5 a	90.6 a
% Shade leaves					33.8 b	47.3 a	33.1 b	46.3 a

* Figures for parameters in a climate region followed by the same letter do not differ significantly from each other ($p \leq 0.05$).

** The point quadrant method to determine the number of foliage layers was not applied to the bush vines.

¹ OC – Optimal canopy management, suckering to only two spurs per bearer, tipping, topping, spurs positioned and foliage removed where more than three foliage layers occurred.

² MC – Suckering between bearers and the trunks only (all spurs budding on the bearer are left in place), tipping, topping, spurs positioned but no foliage removed.

TABLE 1b. The influence of vine development and cordon height on the average canopy characteristics of Pinotage vines in climate region 4 (2003 - 2007).

Parameters	20 cm Bush vine	30 cm Bush vine	30 cm Trellis	60 cm Trellis
Total marks allocation for description of canopy characteristics	60.9 bc*	59.0 c	63.3 ab	65.2 a
Canopy density (bunches)			1.33 a**	1.35 a
Canopy density (blaarlae)			3.29 a	3.21 a
Total canopy density**			4.62 a	4.76 a
% Shade bunches			87.1 a	88.1 a
% Shade leaves			40.4 a	39.7 a

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** The point quadrant method to determine the number of foliage layers was not applied to the bush vines.

TABLE 1c. The influence of canopy management on the average canopy characteristics of Pinotage vines in climate region 4 (2003 - 2007).

Parameters	OC ¹	MC ²
Total marks allocation for description of canopy characteristics	64.9 a*	59.1 b
Canopy density (bunches)	1.29 b**	1.39 a
Canopy density (blaarlae)	2.78 b	3.70 a
Total canopy density	4.07 b	5.09 a
% Shade bunches	84.3 b	91.2 a
% Shade leaves	33.2 b	46.8 a

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** The point quadrant method to determine the number of foliage layers was not applied to the bush vines.

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² MC – Suckering between bearers and the trunks only (all spurs budding on the bearer are left in place), tipping, topping, spurs positioned but no foliage removed.

TABLE 2a. The influence of canopy management, vine development and cordon height on the average viticultural performance of Pinotage in climate region 4 (2003 - 2007).

Vine development	Canopy management	Harvest date	Crop-mass (t/ha)	Number of bunches/vine	Bunch-mass (g)	Sugar (°B)	Acid (g/L)	pH	Skin-colour	
									420 nm	520 nm
20 cm Bush vine	OC ¹	23 Jan	4.1 d*	12 d	119.4 cd	25.9 a	6.6 a	3.57 a	0.387 a	1.679 ab
	MC ²	25 Jan	5.9 cd	19 c	113.1 d	25.5 abc	6.7 a	3.53 ab	0.337 a	1.797 a
30 cm Bush vine	OC	25 Jan	4.3 d	12 d	128.6 c	25.6 ab	6.6 a	3.57a	0.378 a	1.614 ab
	MC	26 Jan	7.0 c	21 c	125.4 c	25.5 abc	6.5 a	3.52 ab	0.365 a	1.543 b
30 cm Trellis	OC	2 Feb	11.5 b	33 ab	142.1 ab	25.1 bc	6.3 ab	3.41 cd	0.380 a	1.632 ab
	MC	3 Feb	12.9 ab	39 a	123.5 cd	25.4 bc	6.0 b	3.47 bc	0.391 a	1.671 ab
60 cm Trellis	OC	4 Feb	12.0 ab	32 b	152.3 a	25.5 abc	6.5 ab	3.38 d	0.379 a	1.670 ab
	MC	7 Feb	13.9 a	41 a	131.2 bc	25.0 c	6.5 ab	3.43 cd	0.383 a	1.677 ab

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TABLE 2b. The influence of canopy management, vine development and cordon height on the average viticultural performance of Pinotage in climate region 4 (2003 - 2007).

Vine develop-ment	Crop mass (t/ha)	Number of bunches/vine	Bunch-mass (g)	Berry-mass (g)	Berry volume (mL)	Sugar (°B)	Acid (g/L)	pH	Skin colour 420 nm	Skin colour 520 nm
20 cm Bush vine	5.0 b*	16 b	116.2 c	1.38 b	1.38 a	25.7 a	6.7 a	3.55 a	0.398 a	1.738 a
30 cm Bush vine	5.6 b	16 b	127.1 b	1.42 ab	1.34 ab	25.5 ab	6.6 a	3.54 a	0.372 a	1.579 b
30 cm Trellis	12.2 a	36 a	132.8 b	1.38 b	1.30 b	25.3 b	6.1 b	3.44 b	0.386 a	1.652 ab
60 cm Trellis	13.0 a	36 a	141.8 a	1.45 a	1.34 ab	25.2 b	6.5 ab	3.41 b	0.38 a	1.674 ab

* Figures for parameters in a climate region followed by the same letter do not differ significantly from each other ($p \leq 0.05$).

TABLE 3a. The influence of canopy management, vine development and cordon height on the wine and must composition of Pinotage in climate region 4 (2003 - 2007).

Vine develop-ment	Canopy manage-ment	Alcohol (%)	Extract (g/L)	Sugar (g/L)	Acid (g/L)	pH	Wine colour 420 nm	Wine colour 520 nm	Total phenols (mg/L)
20 cm Bush vine	OC ¹	15.2 a*	34.1 a	1.9 ab	5.5 a	4.09 a	0.833 a	1.301 a	2193 ab
	MC ²	14.9 ab	33.7 a	1.9 ab	5.6 a	4.09 a	0.820 ab	1.266 ab	1877 bc
30 cm Bush vine	OC	15.1 ab	33.5 ab	1.9 ab	5.7 a	4.04 ab	0.787 ab	1.247 ab	1910 bc
	MC	15.0 ab	33.3 ab	2.3 a	5.4 ab	4.13 a	0.769 bc	1.173 bc	2466 a
30 cm Trellis	OC	14.7 b	31.7 bc	1.9 ab	5.4 ab	4.06 ab	0.689 d	1.092 c	2062 abc
	MC	14.8 ab	31.4 c	2.0 ab	5.1 b	4.02 ab	0.717 cd	1.104 c	1884 bc
60 cm Trellis	OC	14.8 ab	31.8 bc	1.8 b	5.1 b	4.07 ab	0.717 dc	1.126 c	2273 ab
	MC	14.8 ab	31.8 bc	1.8 b	5.4 ab	3.96 b	0.716 cd	1.141 c	1553 c

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TABLE 3b. The influence of vine development and cordon height on the average wine and must composition of Pinotage in climate region 4 (2003 - 2007).

Vine development	Alcohol (%)	Extract (g/L)	Sugar (g/L)	Acid (g/L)	pH	Wine colour 420 nm	Wine colour 520 nm	Total phenols (mg/L)
20 cm Bush vine	15.1 a*	33.9 a	1.9 a	5.6 a	4.09 a	0.827 a	1.283 a	2035 a
30 cm Bush vine	15.0 a	33.4 a	2.1 a	5.5 ab	4.08 a	0.778 b	1.210 a	2178 a
30 cm Trellis	14.7 b	31.6 b	1.9 a	5.3 b	4.04 a	0.704 c	1.099 b	1970 a
60 cm Trellis	14.8 ab	31.8 b	1.8 a	5.3 b	4.01 a	0.716 c	1.134 b	1913 a

* Figures for parameters in a climate region followed by the same letter do not differ significantly from each other. (p≤0.05).

TABLE 4. The influence of canopy treatments, vine development and cordon height on the average wine colour and quality of Pinotage wines in climate region 4 (2003 - 2007).

Treatment	Colour (%)						Overall wine quality (%)					
	2003	2004	2005	2006	2007	Ave.	2003	2004	2005	2006	2007	Ave.
20 cm Bush vine OC ¹	79.0 ab*	85.2 a	86.0 ab	86.6 ab	89.6 a	85.3	64.7 a	56.1 b	59.6 a	59.9 ab	62.6 a	60.6
20 cm Bush vine MC ²	72.0 b	89.2 a	88.2 a	86.9 ab	90.4 a	85.3	55.4 b	64.8 a	59.1 a	61.0 ab	64.5 a	61.0
30 cm Bush vine OC	74.3 ab	91.3 a	86.5 ab	87.5 a	89.7 a	85.9	63.6 a	57.1 b	57.3 a	57.7 b	63.8 a	59.9
30 cm Bush vine MC	78.7 ab	86.8 a	87.4 a	87.5 a	88.8 ab	85.8	57.1 ab	60.1 ab	58.8 a	56.2 b	61.9 a	58.8
30 cm Trellis OC	80.5 ab	78.5 b	83.8 bc	81.0 b	86.6 abc	82.1	58.8 ab	61.1 ab	60.2 a	56.4 b	60.1 a	59.3
30 cm Trellis MC	75.3 ab	75.1 b	80.8 c	81.8 bc	84.6 bc	79.5	61.3 ab	58.9 ab	54.9 a	59.8 ab	59.6 a	58.9
60 cm Trellis OC	83.0 a	78.1 b	82.6 bc	79.5 c	82.9 b	81.2	60.8 ab	60.3 ab	59.2 a	60.1 ab	61.1 a	60.3
60 cm Trellis MC	73.3 ab	73.4 b	81.7 c	79.8 c	87.0 abc	79.0	55.9 b	60.5 ab	58.2 a	64.4 a	59.4 a	59.7

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The coloured blocks indicate where significant differences occurred between the canopy management treatments of vine development treatments.

TABLE 5. The influence of vine development in climate region 4 on the average wine colour and quality of 2003 - 2007 Pinotage wines.

Vine develop- ment	Colour (%)						Overall quality (%)					
	2003	2004	2005	2006	2007	Ave.	2003	2004	2005	2006	2007	Ave.
20 cm Bush vine	75.5 a*	87.2 a	87.1 a	86.8 a	90.0 a	85.3	60.1 a	60.5 a	59.4 a	60.5 ab	63.6 a	60.8
30 cm Bush vine	76.5 a	89.1 a	87.0 a	87.5 a	89.3 a	85.9	60.4 a	58.6 a	58.1 a	57.0 b	62.9 a	59.4
30 cm Trellis	77.9 a	76.8 b	82.3 b	81.4 b	85.6 b	80.8	60.1 a	60.0 a	57.6 a	58.1 ab	59.9 a	59.1
60 cm Trellis	78.2 a	75.8 b	82.2 b	79.7 b	85.0 b	80.1	58.4 a	60.4 a	58.7 a	62.3 a	60.3 a	60.0

* Figures for parameters in a climate region and vintages followed by the same letter do not differ significantly from each other. ($p \leq 0.05$). The coloured blocks indicate where significant differences occurred between the vine development treatments.