

YIELD AND FRUIT QUALITY RESULTS FROM ROOTSTOCK – CROP LOAD STUDY ON NECTARINE ‘ROSE BRIGHT’

Tables 1 – 6 present production results (yield, fruit quality) for nectarine ‘Rose Bright’ in response to rootstock (‘Nemaguard’, ‘Krymsk® 1’, ‘Krymsk® 86’, ‘Elberta’, ‘Cornerstone’) and crop load (high, medium, low) treatments under a vase canopy system for 6 consecutive seasons: 2016/17, 2017/18, 2018/19, 2019/20, 2020/21 and 2021/22, respectively at Tatura, Victoria, Australia.

Table 1. Yield and fruit quality performance statistics in response to rootstock (‘Nemaguard’, ‘Krymsk® 1’, ‘Krymsk® 86’, ‘Elberta’, ‘Cornerstone’) and crop load (high, medium, low) treatments of nectarine ‘Rose Bright’ under a vase canopy system during 2016/17 season.

Treatment	Fruit number (#/tree)	Yield (kg/tree)	Fruit weight (g)	Fruit sweetness (°Brix)	Fruit maturity (I _{AD} value)	Fruit firmness (kgf)	Fruit colour (% red)
Cornerstone	217	18.8	97 AB	13.1	0.2	4.8 A	91
Elberta	239	18.7	88 B	12.6	0.2	4.6 A	91
Krymsk®1	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Krymsk®86	167	15.3	98 A	12.8	0.2	4.6 AB	92
Nemaguard	222	16.9	90 B	13.5	0.2	4.3 B	92
ANOVA	ns	ns	*	ns	ns	*	ns
High	333 a	24.1 a	78 c	11.5 c	0.3 a	5.0 a	89 a
Medium	220 b	19.5 b	93 b	12.8 b	0.2 b	4.5 b	92 b
Low	80 c	8.6 c	108 a	14.7 a	0.2 c	4.2 c	93 b
ANOVA	**	**	**	**	**	**	***
Cor - High	334	25.4	78	11.5	0.2	5	89
Cor - Medium	240	22.5	97	12.9	0.2	4.6	92
Cor - Low	72	8.5	115	14.9	0.2	4.7	93
Elb - High	370	25.6	72	11.3		5	88
Elb - Medium	252	20.5	84	12.5	0.2	4.8	95
Elb - Low	95	10	106	14	0.2	4.1	92
K1 - High	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
K1 - Medium	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
K1 - Low	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
K86 - High	231	19.6	92	11.7	0.2	4.9	91
K86 - Medium	185	17.3	96	12.7	0.2	4.6	92
K86 - Low	86	8.9	105	15.7	0.2	4.2	92
Nem - High	402	26.2	70	11.6	0.2	5	89
Nem - Medium	203	17.8	94	13.1	0.2	4.2	92
Nem - Low	62	6.5	107	15.7	0.1	3.7	94
ANOVA	ns	ns	ns	ns	ns	ns	ns

nd, ns, *, ** and *** indicate not determined, non-significant or significant differences at $P < 0.05$, 0.01 or 0.001, respectively, for the two-way interaction rootstock x crop load treatments. Significant differences ($P < 0.05$) between crop load treatments are denoted with different lower-case letters. Differences between rootstocks are indicated by different upper-case letters. Rootstock abbreviations: ‘Nemaguard’ (Nem), ‘Krymsk® 86’ (K86), ‘Elberta’ (Elb), ‘Krymsk® 1’ (K1), ‘Cornerstone’ (Cor).

Table 2. Yield and fruit quality performance statistics in response to rootstock ('Nemaguard', 'Krymsk® 1', 'Krymsk® 86', 'Elberta', 'Cornerstone') and crop load (high, medium, low) treatments of nectarine 'Rose Bright' under a vase canopy system during 2017/18 season.

Treatment	Fruit number (#/tree)	Yield (kg/tree)	Fruit weight (g)	Fruit sweetness (°Brix)	Fruit maturity (I _{AD} value)	Fruit firmness (kgf)	Fruit colour (% red)
Cornerstone	69 A	6.4	93 B	12.0 C	0.5 A	7.1 A	67 C
Elberta	87 ABC	7.0	83 A	11.9 C	0.5 AB	7.2 AB	63 BC
Krymsk®1	101 C	7.6	83 A	11.2 A	0.5 C	7.4 C	65 C
Krymsk®86	97 BC	7.5	79 A	11.6 B	0.5 AB	7.2 B	58 A
Nemaguard	79 AB	6.1	79 A	11.8 BC	0.5 BC	7.2 B	60 AB
ANOVA	*	ns	***	***	**	***	***
High	120 c	8.7 c	77 a	11.5 a	0.5 b	7.4 b	62
Medium	83 b	7.1 b	86 b	11.8 b	0.5 a	7.2 a	63
Low	57 a	4.9 a	87 b	11.8 b	0.5 a	7.2 a	63
ANOVA	***	***	***	**	*	***	ns
Cor - High	82	7.2	90	11.8 cd	0.5	7.2	66
Cor - Medium	78	7.5	97	12.2 e	0.4	7.1	69
Cor - Low	47	4.3	92	11.9 de	0.5	7.1	65
Elb - High	126	9.1	74	11.8 cde	0.5	7.3	62
Elb - Medium	81	7.1	88	11.9 de	0.5	7.2	66
Elb - Low	55	4.8	88	12.0 de	0.5	7.1	63
K1 - High	167	10.7	69	10.6 a	0.6	7.6	64
K1 - Medium	73	6.2	85	11.2 b	0.5	7.3	63
K1 - Low	64	5.9	94	11.6 bcd	0.5	7.2	68
K86 - High	121	8.8	74	11.4 bc	0.5	7.4	58
K86 - Medium	103	8.2	81	11.6 bcd	0.5	7.73	58
K86 - Low	67	5.4	81	11.8 cd	0.5	7.1	59
Nem - High	105	7.9	75	11.9 cd	0.5	7.3	60
Nem - Medium	78	6.2	81	11.8 cde	0.5	7.2	60
Nem - Low	54	4.3	80	11.7 cd	0.5	7.2	60
ANOVA	ns	ns	ns	*	ns	ns	ns

ns, *, ** and *** indicate non-significant or significant differences at $P < 0.05$, 0.01 or 0.001 , respectively, for the two-way interaction rootstock x crop load treatments. Significant differences ($P < 0.05$) between crop load treatments are denoted with different lower-case letters. Differences between rootstocks are indicated by different upper-case letters. Rootstock abbreviations: 'Nemaguard' (Nem), 'Krymsk® 86' (K86), 'Elberta' (Elb), 'Krymsk® 1' (K1), 'Cornerstone' (Cor).

Table 3. Yield and fruit quality performance statistics in response to rootstock ('Nemaguard', 'Krymsk® 1', 'Krymsk® 86', 'Elberta', 'Cornerstone') and crop load (high, medium, low) treatments of nectarine 'Rose Bright' under a vase canopy system during 2018/19 season.

Treatment	Fruit number (#/tree)	Yield (kg/tree)	Fruit weight (g)	Fruit sweetness (°Brix)	Fruit maturity (I _{AD} value)	Fruit firmness (kgf)	Fruit colour (% red)
Cornerstone	75 A	7.7 A	105 B	14.3 AB	0.6 BC	6.8 B	66 B
Elberta	100 AB	8.9 AB	95 A	13.9 A	0.6 BC	6.9 BC	63 AB
Krymsk®1	105 BC	10.2 B	106 B	14.5 B	0.4 A	6.5 A	79 C
Krymsk®86	128 C	10.8 B	92 A	13.9 A	0.6 B	6.9 BC	65 AB
Nemaguard	95 AB	8.1 A	91 A	14.1 A	0.6 C	7.0 C	62 A
ANOVA	**	***	***	*	***	***	***
High	159 b	12.5 c	83 a	13.5 a	0.6 b	7.0 b	66
Medium	81 a	8.5 b	105 b	14.5 b	0.5 a	6.7 a	68
Low	62 a	6.4 a	104 b	14.4 b	0.6 ab	6.8 a	67
ANOVA	***	***	***	***	**	**	ns
Cor - High	101	9.5	94	13.6	0.6	7.0	64
Cor - Medium	78	8.8	112	14.6	0.6	6.8	66
Cor - Low	45	4.9	109	14.6	0.6	6.8	68
Elb - High	157	12.4	85	13.8	0.6	6.9	62
Elb - Medium	92	8.9	98	13.9	0.6	6.9	66
Elb - Low	52	5.3	103	14.0	0.6	6.9	68
K1 - High	164	13.6	87	13.4	0.5	6.6	82
K1 - Medium	72	8.2	116	15.2	0.4	6.4	79
K1 - Low	77	8.7	114	14.9	0.5	6.5	78
K86 - High	218	15.8	74	13.1	0.6	7.1	63
K86 - Medium	83	8.6	104	14.4	0.5	6.7	66
K86 - Low	82	7.9	99	14.2	0.5	6.8	66
Nem - High	152	11.4	78	13.6	0.7	7.1	60
Nem - Medium	82	7.9	97	14.5	0.6	6.9	63
Nem - Low	52	5.0	97	14.1	0.7	7.1	62
ANOVA	ns	ns	ns	ns	ns	ns	ns

ns, *, ** and *** indicate non-significant or significant differences at $P < 0.05$, 0.01 or 0.001 , respectively, for the two-way interaction rootstock x crop load treatments. Significant differences ($P < 0.05$) between crop load treatments are denoted with different lower-case letters. Differences between rootstocks are indicated by different upper-case letters. Rootstock abbreviations: 'Nemaguard' (Nem), 'Krymsk® 86' (K86), 'Elberta' (Elb), 'Krymsk® 1' (K1), 'Cornerstone' (Cor).

Table 4. Yield and fruit quality performance statistics in response to rootstock ('Nemaguard', 'Krymsk® 1', 'Krymsk® 86', 'Elberta', 'Cornerstone') and crop load (high, medium, low) treatments of nectarine 'Rose Bright' under a vase canopy system during 2019/20 season.

Treatment	Fruit number (#/tree)	Yield (kg/tree)	Fruit weight (g)	Fruit sweetness (°Brix)	Fruit maturity (I _{AD} value)	Fruit firmness (kgf)	Fruit colour (% red)
Cornerstone	268 BC	19.9 C	80 C	13.1 B	0.5	5.6	65 B
Elberta	299 C	20.2 C	75 B	12.4 A	0.5	5.8	64 AB
Krymsk®1	201 A	12.7 A	72 B	13.2 B	0.4	5.7	79 C
Krymsk®86	301 C	19.1 BC	67 A	12.6 A	0.5	5.9	62 A
Nemaguard	261 B	17.6 B	75 B	13.0 B	0.5	5.7	62 A
ANOVA	***	***	***	***	ns	ns	***
High	449 c	25.6 c	57 a	11.4 a	0.5 b	6.3 b	66
Medium	198 b	15.6 b	80 b	13.2 b	0.4 a	5.6 a	67
Low	151 a	12.5 a	85 c	14.0 c	0.4 a	5.4 a	67
ANOVA	***	***	***	***	***	***	ns
Cor - High	442	26.7	64 c	11.7 c	0.5	6.1 de	65
Cor - Medium	218	18.9	87 fg	13.4 ef	0.4	5.4 ab	65
Cor - Low	163	14.1	88 fg	14.1 h	0.4	5.4 ab	67
Elb - High	520	29.9	58 bc	11.1 ab	0.5	6.2 e	64
Elb - Medium	221	17.3	79 de	12.8 d	0.5	5.5 b	66
Elb - Low	156	13.6	88 fg	13.3 def	0.5	5.6 bc	61
K1 - High	356	17.7	49 a	10.9 a	0.5	6.6 f	76
K1 - Medium	140	10.8	77 de	13.5 fg	0.4	5.5 bc	81
K1 - Low	108	9.6	89 g	15.1 i	0.4	5.1 a	80
K86 - High	476	26	55 ab	11.6 bc	0.5	6.3 ef	62
K86 - Medium	237	17.2	73 d	12.9 de	0.5	5.8 cd	61
K86 - Low	191	14	74 d	13.3 edf	0.4	5.6 bc	63
Nem - High	474	27.5	59 bc	11.6 bc	0.5	6.1 de	62
Nem - Medium	172	14	81 ef	13.4 edf	0.5	5.6 bc	61
Nem - Low	137	11.4	84 efg	14.1 gh	0.4	5.4 b	65
ANOVA	ns	ns	*	***	ns	**	ns

ns, *, ** and *** indicate non-significant or significant differences at $P < 0.05$, 0.01 or 0.001 , respectively, for the two-way interaction rootstock x crop load treatments. Significant differences ($P < 0.05$) between crop load treatments are denoted with different lower-case letters. Differences between rootstocks are indicated by different upper-case letters. Rootstock abbreviations: 'Nemaguard' (Nem), 'Krymsk® 86' (K86), 'Elberta' (Elb), 'Krymsk® 1' (K1), 'Cornerstone' (Cor).

Table 5. Yield and fruit quality performance statistics in response to rootstock ('Nemaguard', 'Krymsk® 1', 'Krymsk® 86', 'Elberta', 'Cornerstone') and crop load (high, medium, low) treatments of nectarine 'Rose Bright' under a vase canopy system during 2020/21 season.

Treatment	Fruit number (#/tree)	Yield (kg/tree)	Fruit weight (g)	Fruit sweetness (°Brix)	Fruit maturity (I _{AD} value)	Fruit firmness (kgf)	Fruit colour (% red)
Cornerstone	221 B	21.5 B	105 C	11.0 A	0.2 B	4.8 BC	82 A
Elberta	223 B	20.9 B	97 AB	11.1 A	0.2 B	4.7 B	83 A
Krymsk®1	94 A	7.7 A	92 AB	14.5 C	0.1 A	4.6 B	94 B
Krymsk®86	248 B	21.9 B	91 A	10.9 A	0.3 C	4.9 C	82 A
Nemaguard	218 B	20.3 B	100 BC	11.9 B	0.2 AB	4.2 A	82 A
ANOVA	***	***	**	***	***	**	***
High	285 c	24.0 c	86 a	11.2 a	0.2 b	4.8 b	83
Medium	198 b	18.4 b	95 b	12.4 b	0.2 b	4.6 a	85
Low	119 a	12.9 a	109 c	12.0 b	0.2 a	4.5 a	86
ANOVA	***	***	***	**	*	***	ns
Cor - High	329	28.4	89	11.3 ab	0.2	4.7 cde	77 a
Cor - Medium	226	22.7	103	11.1 a	0.2	4.8 de	84 bcd
Cor - Low	108	13.4	124	10.6 a	0.2	5.0 ef	85 d
Elb - High	280	24.9	88	11.1 a	0.2	4.7 cde	86 d
Elb - Medium	233	21.6	97	11.2 a	0.2	4.6 cd	84 cd
Elb - Low	154	16.2	106	11.1 a	0.2	4.7 cde	79 abc
K1 - High	145	11.7	87	11.2 a	0.2	5.2 f	93 e
K1 - Medium	93	6.7	87	16.3 c	0.1	4.8 def	94 e
K1 - Low	43	4.5	101	15.9 c	0.2	3.9 a	95 e
K86 - High	323	26.2	82	10.9 a	0.3	5.2 f	83 bcd
K86 - Medium	264	23.9	91	10.7 a	0.2	4.8 de	78 ab
K86 - Low	159	15.5	100	11.0 a	0.3	4.8 de	83 cd
Nem - High	349	28.8	86	11.5 ab	0.2	4.4 bc	77 a
Nem - Medium	173	17.0	98	12.7 b	0.2	4.0 a	83 bcd
Nem - Low	133	15.0	115	11.5 ab	0.2	4.2 ab	86 d
ANOVA	ns	ns	ns	***	ns	***	**

ns, *, ** and *** indicate non-significant or significant differences at $P < 0.05$, 0.01 or 0.001 , respectively, for the two-way interaction rootstock x crop load treatments. Significant differences ($P < 0.05$) between crop load treatments are denoted with different lower-case letters. Differences between rootstocks are indicated by different upper-case letters. Rootstock abbreviations: 'Nemaguard' (Nem), 'Krymsk® 86' (K86), 'Elberta' (Elb), 'Krymsk® 1' (K1), 'Cornerstone' (Cor).

Table 6. Yield and fruit quality performance statistics in response to rootstock ('Nemaguard', 'Krymsk® 1', 'Krymsk® 86', 'Elberta', 'Cornerstone') and crop load (high, medium, low) treatments of nectarine 'Rose Bright' under a vase canopy system during 2021/22 season.

Treatment	Fruit number (#/tree)	Yield (kg/tree)	Fruit weight (g)	Fruit sweetness (°Brix)	Fruit maturity (I _{AD} value)	Fruit firmness (kgf)	Fruit colour (% red)
Cornerstone	247 A	18.2 B	76 D	10.3 BC	0.9 C	7.2	68 AB
Elberta	310 BC	18.7 B	63 C	9.9 A	0.9 BC	7.1	70 B
Krymsk®1	260 AB	11.4 A	49 A	10.6 C	0.8 A	7.4	84 C
Krymsk®86	353 C	19.3 B	58 B	9.9 AB	0.9 B	7.2	66 A
Nemaguard	305 BC	18.8 B	63 C	9.7 A	0.9 B	7.1	66 A
ANOVA	***	***	***	***	***	ns	***
High	430 c	21.5 c	52 a	9.4 a	0.9	7.2	69 a
Medium	270 b	17.3 b	63 b	10.1 b	0.9	7.1	71 b
Low	185 a	13.0 a	71 c	10.7 c	0.9	7.2	72 b
ANOVA	***	***	***	***	ns	ns	**
Cor - High	289 cd	19.6	69	10.0 cd	0.9	7.0	66
Cor - Medium	284 cd	21.4	77	10.2 de	0.9	7.0	68
Cor - Low	167 a	13.5	82	10.6 e	1.0	7.6	70
Elb - High	460 ef	24.5	54	9.5 bc	0.8	7.1	70
Elb - Medium	281 bcd	18.0	65	10.1 de	0.9	7.1	71
Elb - Low	190 ab	13.6	71	10.2 de	0.9	7.1	68
K1 - High	465 ef	15.9	34	8.8 a	0.8	7.4	82
K1 - Medium	178 a	9.5	49	10.6 e	0.8	7.4	85
K1 - Low	136 a	8.7	64	12.3 f	0.8	7.3	86
K86 - High	521 f	24.4	47	9.5 bc	0.9	7.4	63
K86 - Medium	316 d	19.0	60	10.1 de	0.9	7.1	66
K86 - Low	223abcd	14.5	65	10.2 de	0.8	7.0	68
Nem - High	415 e	23.3	56	9.1 ab	0.9	7.1	62
Nem - Medium	290 cd	18.4	64	9.8 cd	0.9	7.1	65
Nem - Low	209 abc	14.6	71	10.3 de	0.9	7.1	70
ANOVA	**	ns	ns	***	ns	ns	Ns

ns, *, ** and *** indicate non-significant or significant differences at $P < 0.05$, 0.01 or 0.001 , respectively, for the two-way interaction rootstock x crop load treatments. Significant differences ($P < 0.05$) between crop load treatments are denoted with different lower-case letters. Differences between rootstocks are indicated by different upper-case letters. Rootstock abbreviations: 'Nemaguard' (Nem), 'Krymsk® 86' (K86), 'Elberta' (Elb), 'Krymsk® 1' (K1), 'Cornerstone' (Cor).