

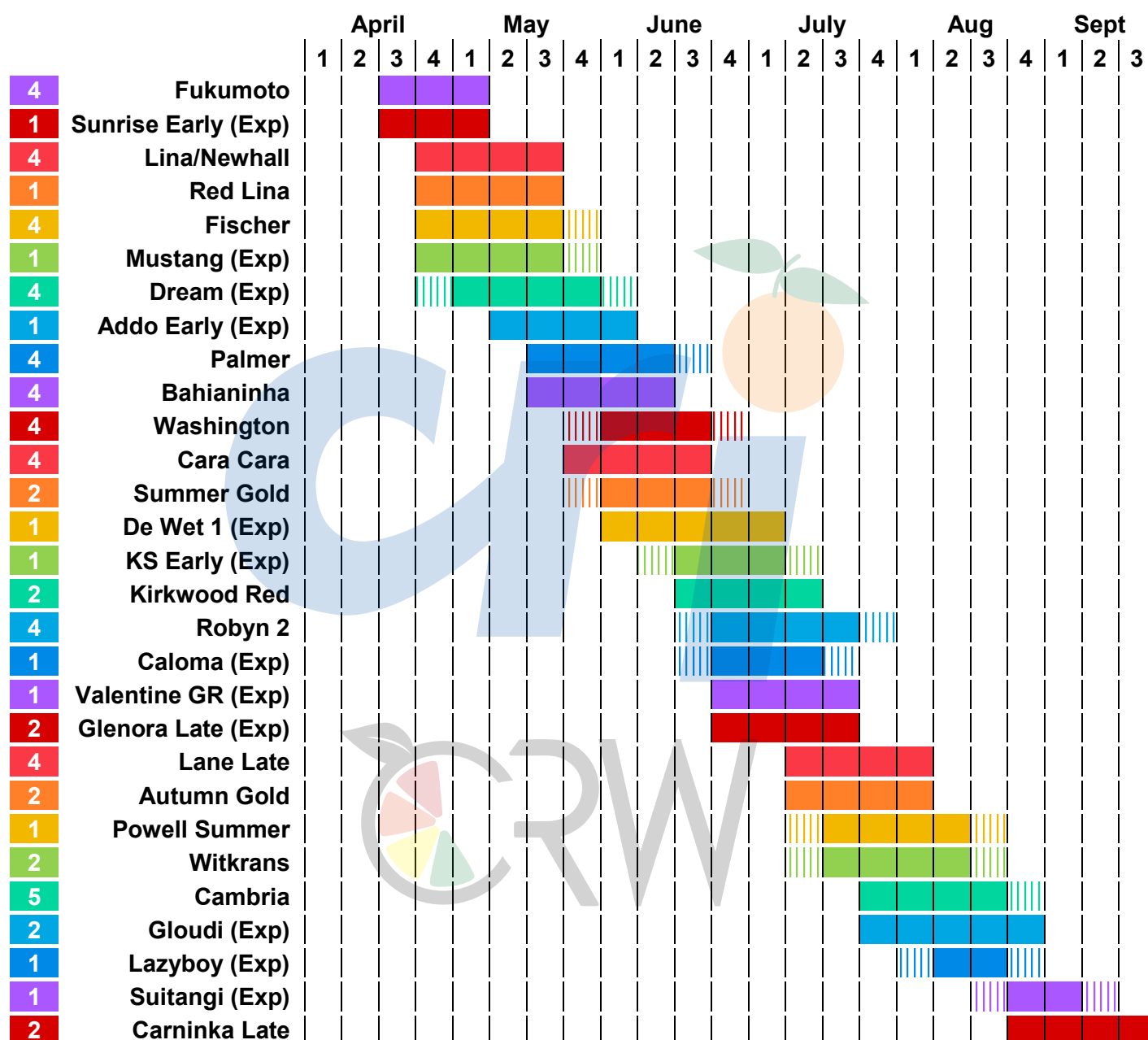
Navels





Navel Maturity Periods

Eastern Cape



Key:

- Exp** Experimental Cultivar
- 1** CGA Cultivar Company
- 2** Citrogold
- 3** Eurosemillas
- 4** Open
- 5** Stargrow
- 6** XLnT
- 7** Citrus Genesis

Updated: July 2024



Autumn Gold Navel

Origin

A branch mutation on a Washington navel tree discovered during the 1950s in Mourquong, Australia, on the property of Jack Pollock. Originally named Pollock Late navel it has now become known as Autumn Gold world wide.

Ownership

Citrogold Proprietary Property.

General Description

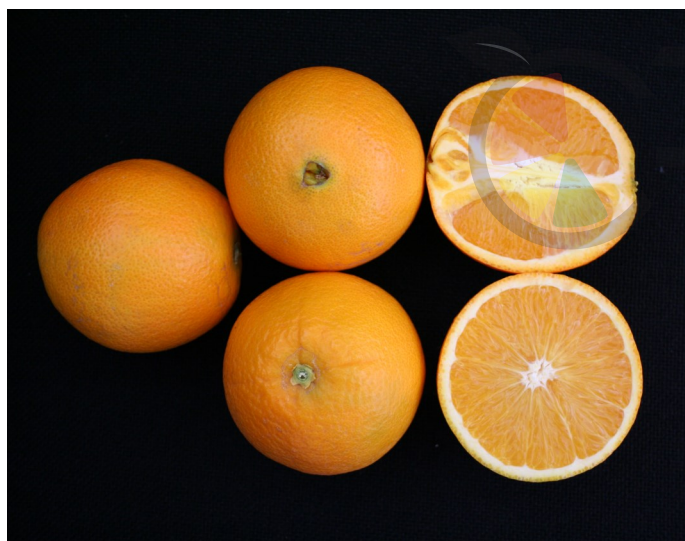
A late maturing navel with very good internal quality and external appearance. In the East Cape citrus areas fruit matures mid June to early July. In South Africa six late maturing navel selections from Australia have been tested and to date the Autumn Gold has been the most popular. This navel selection has helped extend the navel season although plantings have not been excessive.

Tree Characteristics

The tree is similar in growth, shape and yield to other average navel selections. Vigour is also similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.



Autumn gold fruit showing typical rind texture, colour and shape. Navel end varies from small to closed.

Fruit Characteristics

Fruit size is a fairly uniform medium to medium large in size. Navel ends are small to closed. Fruit shape is round. The fruit rind develops a deep orange colour at maturity. Peelability and rind oil are reasonable and similar to most other Navel selections. Internal flesh colour is orange, and flesh texture is tender. The flavour is good with a ratio of 10:1 late in June to early July. Fruit size ranges from 87 to 70 mm (counts 48 to 88) with normal crops.

Production

Yields of 50 to 60 tons per hectare are normal for mature orchards. Young trees bear well.

General

The Autumn Gold does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.



Five year old Autumn Gold tree on Carrizo citrange showing typical production and fruit size (tree height 2.5m).

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Autumn Gold on Swingle citrumelo - Count 56 - Sundays River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
26/06/2008	51.2	9.6	1.05	9.1	0	3-4
08/07/2008	51.9	10.1	0.94	10.7	0	1-2
22/07/2008	51.7	12.2	0.92	13.3	0	1

Count Distribution

Count	36	40	48	56	64	72	88	105	125
%	1.0	4.1	9.1	28.8	21.1	22.7	9.8	2.9	0.5

Production

33.3 Kg per tree and 18.4 tons per hectare at 6 x 3 m spacing

Export %

Grade	Percentage
1	47
2	20
3 & 4	33

Note: These data are from 4 year old trees in the Dunbrody region of the Sundays River Valley in the East Cape for the 2008 season.

Comments

The Autumn Gold is a good quality navel that plays an important role in extending the season of superior quality eating fruit.

Cambria Navel

Origin

A tree mutation discovered in a Washington navel orchard in the Cambria area of the Gamtoos region in the Eastern Cape, South Africa.

Ownership

Patented - PBR ZA 951297. Managed by Stargrow.

General Description

The Cambria is a late maturing navel which reaches peak maturity in the Gamtoos River Valley (GRV) region of the East Cape in early to mid July, approximately 6 weeks later than Palmer navel peak maturity. The Cambria bears well in healthy orchards. Cambria navel internal quality is very good and the fruit is in demand in discerning markets.

Tree Characteristics

The tree is similar in growth, shape and yield to other navel selections. Vigour is slightly less probably due to the early bearing trends.

Rootstock Options

In the Gamtoos River Valley region of East Cape many orchards are on Rough Lemon and the internal quality is good. In replant situations or where other factors inhibit the use of Rough Lemon, suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange.

Fruit Characteristics

Fruit are medium sized with good rind colour at maturity although the Cambria tends to set fruit of slightly different maturity causing overall fruit colour to be

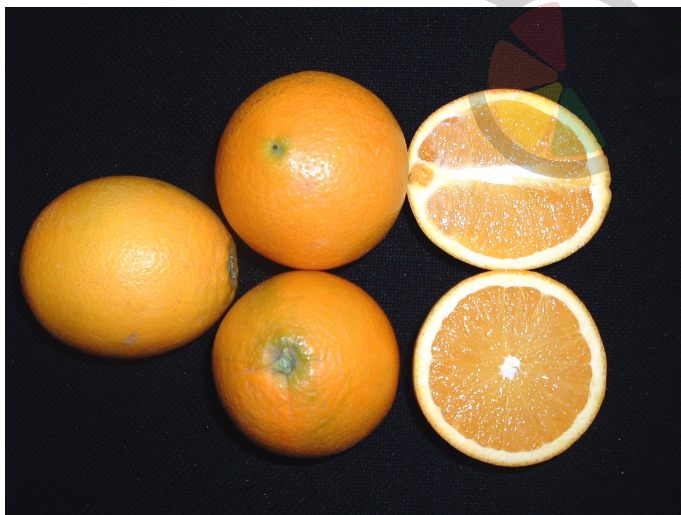
variable which can necessitate selective picking. The fruit has small to closed navel ends and rinds are smooth. Fruit is firm and tends to be slightly elongated, which appears to be more prominent in young trees. Fruit size ranges from 80 to 70 mm (count 64 to 88) with normal crops.

Production

Yields of 60 to 70 tons per hectare are normal for mature orchards. Young trees bear prolifically from the third year which could lead to the slightly reduced vegetative growth rates and overall tree vigour.

General

The Cambria does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.



Cambria fruit showing typical shape, smooth rind texture and closed navel.



Five Year old Cambria tree on Carrizo citrange showing typical production and fruit size (tree height 2m).

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Cambria on Rough Lemon - Count 72 - Gamtoos River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
25/06/2008	56.0	9.8	1.08	9.1	0	2-4
09/07/2008	54.3	10.2	0.92	11.1	0	1-3
23/07/2008	54.3	12.4	0.86	14.4	0	1-2

Note: These data are from 9 year old trees in the Patensie region of the Gamtoos Valley of the East Cape for the 2008 season

Count Distribution

Count	40	48	56	64	72	88	105
%	3.3	37.9	17.1	18.2	26.8	18.7	8.0

Production

158.6 Kg per tree and 66 tons per hectare at 6 x 3 m spacing

Export %

Grade	Percentage
1	52.9
2	13.4
3 & 4	33.7

Note: These data are from 18 year old trees in the Gamtoos Valley of the East Cape for the 2008 season

Comments

The Cambria is an excellent quality navel that is already playing a substantial role in extending the season of superior quality eating fruit in the discerning markets.

Cara Cara Navel

Origin

A branch mutation discovered in a Washington navel orchard on the farm Cara Cara in the Valencia region of Venezuela during the late 1980's. This selection was supplied to the local University's Foundation Block and disseminated throughout the citrus world as a result of its unique internal red flesh caused by Lycopene. In Venezuela, a tropical climate, external colour is dark green while internal colour is a deep red. The Cara Cara has become popular in California, Israel and South Africa and is now starting to receive attention in world markets. It is commercially available in South Africa.

Ownership

Open.

General Description

A pigmented navel that matures at the same time as its parent, the Washington navel, although acid levels have been reported to be lower. Internal quality and external appearance are very good. In the traditional navel areas maturity is end May to mid June.

Tree Characteristics

The tree is similar in shape and yield to other navels; vigour is slightly less.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit size is a uniform medium to medium large, ranging

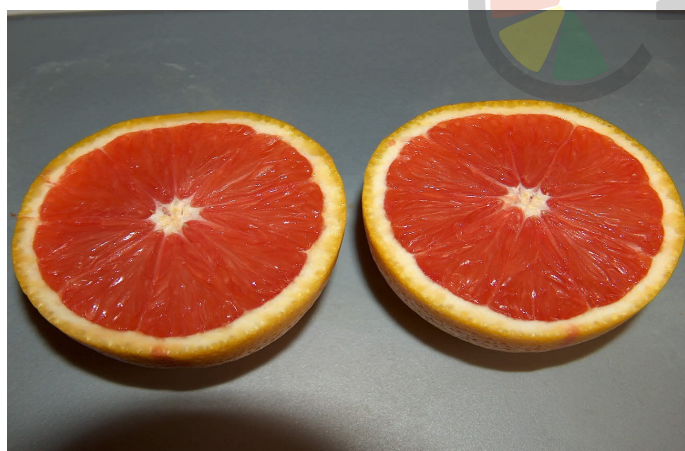
from 82 to 68 mm (counts 56 to 88). Navel ends are small. Fruit shape is round and rinds are smooth, similar to average navel selections. The fruit rind develops a deep orange colour during May and internal flesh colour is an intermediate red, depending on climate and time of harvest. Peelability and rind oil are reasonable and similar to most other navel selections. Flesh texture is soft and tender and flavour is very good. Fruit maturity is from end May to early June in the East Cape citrus areas.

Production

Yields of 50 to 60 tons per hectare are normal for mature orchards.

General

The Cara Cara does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.



Cara Cara fruit showing typical uniform internal pigmentation.



Eight year old Cara Cara Navel tree on Carrizo citrange under micro jet irrigation (tree height 2.5m).

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Cara Cara on Carrizo citrange - Count 56 - East Cape Midlands						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
21/05/2009	48.8	11.1	1.23	9.0	0	4
27/05/2009	46.6	11.1	1.24	9.0	0	2
03/06/2009	48.9	11.3	1.13	10.0	0	1

Note: These data are from 14 year old trees in the Fort Beaufort region of the East Cape Midlands.

Count Distribution

Count	36	40	48	56	64	72	88	105
%	0.3	4.0	8.9	26.1	20.2	20.3	15.8	4.4

Production

60 Kg per tree and 60 tons per hectare at 5 x 2 m spacing.

Export %

Grade	Percentage
1	51.5
2	22.5
3 & 4	26.0

Note: These data are from 9 year old trees in the Sundays River Valley region of the East Cape.

Comments:

The Cara Cara is a very good quality navel that could play a role in extending the niche markets due to its attractive internal pigmentation, its antioxidant content and very good eating quality.

Carninka Navel

Origin

A tree mutation on Swingle citrumelo rootstock discovered in a Palmer navel orchard on the farm of D. Rautenbach in the Patensie area during 2005. It is currently at the experimental stage and has not yet been released commercially in South Africa.

Ownership

D. Rautenbach - Agent - Citrogold.

General Description

A very late maturing navel with excellent internal quality and external appearance. In the Patensie area of the Gamtoos Valley fruit matures late August to early September; fruit hangs well on the tree even into October. This navel selection could extend the navel season to the end of our current Valencia season.

Tree Characteristics

The tree is similar in growth, shape and yield to other average navel selections, depending on soil type and whether plantings are on new or replant ground. Vigour is also similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit are a uniform medium large. Navel ends are very small to closed. Fruit shape is round and rinds are smooth, similar to average navel selections. The fruit rind develops a deep orange colour. Peelability and rind oil are reasonable and similar to most other Navel selections. Internal flesh colour is orange and flesh texture is soft and tender. The flavour is excellent with high sugars, acid levels and a ratio of 10:1 in late August to early September. It is currently the latest maturing navel selection known in South Africa or elsewhere. Fruit size ranges from 75 to 85 mm with normal crops.

Production

The first progeny of this cultivar are now in bearing and yields are typical for trees of this age. The parent tree has been used to produce trees for the second stage of the evaluation so yields have been reduced due to budwood cutting.

General

The Dansweet does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Experimental - suitable navel areas. Limited quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.



Three year old Dansweet tree on Swingle citrumelo showing typical growth and good yield on young trees (tree height 1.5m).

Updated: May 2012

Evaluation Data

Internal Quality - Dansweet on Swingle citrumelo - Count 56 - Gamtoos River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
23/08/2008	50.2	14.0	1.53	9.2	0	1-3
08/08/2008	55.9	14.0	1.62	8.6	0	1
21/08/2008	52.3	14.7	1.48	9.9	0	1
04/09/2008	54.2	14.9	1.48	10.1	0	1

Count Distribution

Insufficient data available to give an accurate count distribution.

Production

Insufficient data available to give accurate production.

Export %

Insufficient data available to give accurate export figures.

Comments

The Dansweet is an excellent quality navel that could play a substantial role in extending the season of superior quality eating fruit in the discerning markets.

Chislett Summer Navel

Origin

A tree mutation discovered during the 1950s in a Washington navel orchard on the property of Norm and Greg Chislett at Kenley, Australia.

Ownership

Citrogold Proprietary Property.

General Description

A late maturing navel with very good internal quality and external appearance. In the East Cape citrus areas, fruit matures mid June to early July. In South Africa, six late maturing navel selections from Australia have been tested and to date the Chislett has not been planted extensively. This navel selection could help to extend the navel season.

Tree Characteristics

The tree is similar in growth, shape and yield to other average navel selections. Vigour is also similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange. Rootstocks inducing lower sugars and acid levels are not advised.



Chislett navel showing typical shape, navel size, rind texture and colour.

Fruit Characteristics

Fruit size is a fairly uniform medium to medium large in size. Navel ends are small. Fruit shape is round. The fruit rind develops a deep orange colour at maturity. Peelability and rind oil are reasonable and similar to most other Navel selections. Internal flesh colour is orange, and flesh texture is tender. The flavour is very good with high sugars, acid levels and a ratio of 10:1 late in June. Fruit size ranges from 75 to 85 mm with normal crops.

Production

Yields of 50 to 60 tons per hectare are normal for mature orchards. Young trees bear well.

General

The Chislett does not require crop manipulation. The Chislett is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Evaluation Data

Internal Quality - Chislett on Troyer citrange - Count 72 - Citrus Foundation Block						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
19/06/2008	50.2	12.9	1.65	7.8	0	5
09/07/2008	50.5	14.9	1.58	9.4	0	1-3
21/07/2008	51.6	14.9	1.54	9.8	0	1
28/07/2008	52.7	15.1	1.46	10.3	0	1

Note: Maturity would be approximately late June to early July in the East Cape citrus regions.

Count Distribution

Insufficient data available to give an accurate count distribution.

Production

Insufficient data available to give accurate production.

Export %

Insufficient data available to give accurate export figures.

Comments

The Chislett is a very good quality navel that could play a role in extending the season of superior quality eating fruit.



Dream Navel

Origin

The Dream navel was found by D J Dream as a budded tree in a Seminole county grove near Sanford in Florida. It is a budsport of unknown origin. The original tree was discovered in 1939 when it was approximately 30 years old. In view of its age it is most probably a Washington navel bud sport.

Ownership

Open.

General Description

An earlier maturing navel selection that matures at the Citrus Foundation Block (CFB) near Uitenhage in mid May. Results from the CFB and UC Lindcove show this selection to have very good internal quality and external appearance. Maturity at Lindcove is the equivalent of mid April which supports South African estimated maturity dates.

Tree Characteristics

The tree is similar in growth, shape and yield to other average navel selections.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit are medium large. Navel ends are very small to closed. Fruit shape is round and rinds are smooth.



Dream navel fruit showing typical shape, closed navel and smooth rind texture.

The fruit rind develops a deep uniform orange colour at maturity. Peelability and rind oil are reasonable and similar to most other navel selections. Internal flesh colour is orange and flesh texture is soft and tender. The flavour is very good with high sugars, acid levels and a ratio of 10:1 in mid to late May at the Citrus Foundation Block. This would equate to late April to early May in the East Cape citrus regions. Fruit size ranges from 70 to 80 mm (Count 88 to 64) at the Citrus Foundation Block while a report from Florida describes it as being smaller than some Florida navels. In South Africa it is considered to have slightly larger fruit size than average navel selections.

Production

Production is good, however figures are still to be included.

General

The Dream does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.



Nine year old Dream Navel tree on C35 citrange showing typical shape and yields.

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Status, Area Suitability and Availability

Experimental - probably suitable for navel areas. Limited quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Dream Navel on Troyer citrange - Count 64 - Citrus Foundation Block						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
22/04/2008	52.0	9.8	1.15	8.5	0	6-7
06/05/2008	54.2	10.2	1.02	10.0	0	2-3
20/05/2008	51.9	10.6	0.79	13.4	0	1-3

Count Distribution

Insufficient data available to give an accurate count distribution.

Production

Insufficient data available to give accurate production.

Export %

Insufficient data available to give accurate export figures.

Comments

The Dream is a good quality navel that could be of value in spreading the navel harvesting season earlier. It has not been tested extensively in South Africa to date.

Fischer Navel

Origin

The Fischer was discovered as a branch mutation on a Washington navel tree by Mrs. Fischer who supplied it to Armstrong Nurseries in southern California for propagation. They in turn supplied the Fischer to UCR for virus eradication and evaluation.

Ownership

Open.

General Description

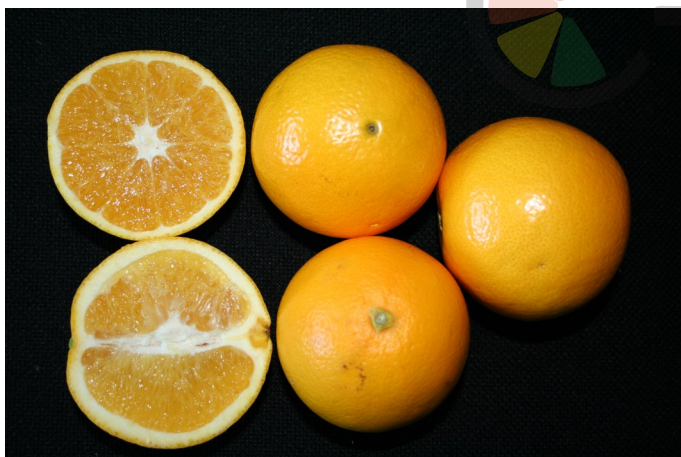
The Fischer navel has for many years been a popular selection in California because of its early maturity in comparison with the Washington navel and its excellent internal quality and external appearance. In the Patensie area of the Gamtoos Valley fruit matures late April to mid May, which is up to three weeks earlier than Palmer navel, and the fruit hangs well on the tree. Data from UCR shows the Fischer to be one week earlier at Lindcove Field Station than Patensie area. This navel selection could be an early extension to the Palmer/Washington navel season and help reduce production issues caused by the extended season made up mainly of Palmer and Washington.

Tree Characteristics

The tree is similar in growth, shape and yield to other average navel selections. Vigour is also similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.



Fischer navel fruit showing typical round shape, rind texture and colour.

Fruit Characteristics

Fruit are a uniform medium large. Navel ends are small to closed. Fruit shape is round and rinds are smooth, similar to average navel selections. The fruit rind develops a deep uniform orange colour throughout the tree. Peelability and rind oil are reasonable and similar to most other Navel selections. Internal flesh colour is orange and flesh texture is soft and tender. The flavour is excellent with high sugars, acid levels and a ratio of 10:1 late in April. It is currently seen by many as a replacement for Palmer navels, particularly earlier in the season. Fruit size ranges from 70 to 80mm (counts 64 & 72) with normal crops.

Production

Yields of 50 to 60 tons per hectare are normal for mature orchards. Young trees bear well.

General

The Fischer does not require crop manipulation and it is not susceptible to any pests and/or diseases other than



Eight year old Fischer Navel tree on Rough Lemon showing typical size, crops and growth (tree height 2.2m).

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Fischer on Rough Lemon - Count 56 - Gamtoos River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
06/05/2008	51.1	10.6	0.98	10.8	0	3
15/05/2008	51.8	10.2	1.05	9.7	0	3
22/05/2008	50.1	9.9	1.04	9.5	0	2-3
29/05/2008	50.0	9.9	0.96	10.3	0	2-3

Count Distribution

Count	36	40	48	56	64	72	88	105	125
%	0.8	3.4	10.9	29.4	23.7	19.8	6.8	4.9	0.3

Production

63.2 Kg per tree and 35 tons per hectare at 6 x 3m spacing.

Export %

Grade	Percentage
1	66.9
2	13.3
3 & 4	19.8

Note: These data are from 9 year old trees in the Patensie region of the Gamtoos Valley in the East Cape.

Comments

The Fischer is an excellent quality navel that could play a substantial role in reducing the number of early Palmer navels and extend the number of superior quality eating fruit in the discerning markets. During 2008 it was shown to be superior to the Palmer in numerous aspects in the Patensie area. Export percentage was 66.9 in comparison with Palmer which was 53.5 from the adjacent orchard planted at the same planting distance and on the same rootstock.

Fukumoto Navel

Origin

The Fukumoto originates from Japan where it was first grown by S. Fukumoto. It was fairly popular in the warmer south western navel growing regions of Japan. It was released in California in 1990.

Ownership

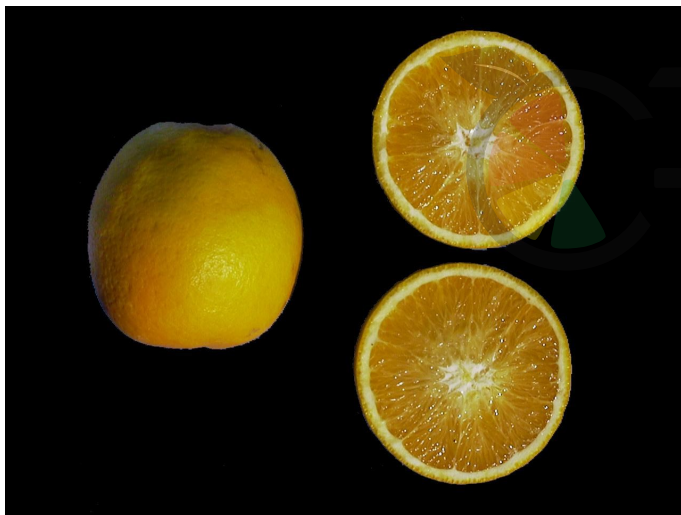
Open.

General description

An earlier maturing navel with very good internal quality. External colour is excellent and substantially better than other navels; it is almost mandarin like in its deep orange to red rind colour. Reports from California indicate that there is some form of incompatibility with Fukumoto on trifoliate hybrids, although to date no disease has been linked to this disorder. To date this problem has not been observed in South Africa except on C35 rootstock. In case problems do start to develop as in California a new selection has been imported for evaluation under our conditions. Existing plantings in South Africa are being kept under observation; the oldest commercial orchards were planted in 2003. The Fukumoto has not been planted on a large scale in South Africa to date which may well be fortunate should the Californian problem occur here.

Tree characteristics

The tree is similar in growth, shape and yield to other navel selections. Vigour is also similar to normal navels.



Fukumoto fruit showing typical shape, rind texture and rind thickness. Note the flattened navel end.

Rootstock options

From surveys conducted in South Africa to date, it is not warranted to rule out Carrizo citrange, but in view of the Californian experience, as well as the limited South African experience, it may well be safer not to use C-35 citrange at this stage. Growers in high quality navel areas can probably make use of non trifoliate rootstocks, provided that soil type and replant situation allow for this choice. Swingle citrumelo should be avoided.

Fruit characteristics

Fruit size is a uniform large and navel ends are medium to small. Fruit shape is round to slightly elongated. The fruit rind colour is uniform and develops a deep orange to red colour at maturity making this a highly attractive fruit. Peelability and rind oil is reasonable and similar to most other navel selections. Internal flesh colour is orange, and flesh texture is tender like other navels. The flavour is very good with high sugars, acid levels and a ratio of 10:1 early in May. Fruit size ranges from 75 to 85 mm (Counts 72 to 56) with normal crops in navel areas.



Six year old Fukumoto navel tree on Carrizo citrange showing healthy growth and no signs of incompatibility.

Updated: May 2012

Production

Yields of 50 to 60 tons per hectare are normal for mature orchards. Young trees bear well.

General

The Fukumoto does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Commercial - suitable navel areas. Limited quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Fukumoto on Carrizo citrange - Count 64						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
02/04/2009	44.3	9.8	1.26	7.8	0	2-4
07/04/2009	49.8	10.3	1.25	6.6	0	2-3
16/04/2009	47.8	11.3	1.11	10.2	0	1-2

Count Distribution

Count	40	48	56	64	72	88	105	125
%	1.0	3.0	6.0	17.0	28.0	33.0	12.0	0

Production

41.4 Kg per tree and 36 tons per hectare at 5.75 x 2 m spacing.

Export %

Grade	Percentage
1	47
2	20
3 & 4	33

Note: These data are from 6 year old trees in the Sunlands region of the Sundays River Valley in the East Cape.

Comments

The Fukumoto is a very good quality, attractive navel that could be of value in starting the season with fruit of superior quality and appearance. The incompatibility problems being encountered in California (CA) with Fukumoto on trifoliate hybrid rootstocks are mainly on C35 citrange. In South Africa the only incompatibility problems found to date have been on Swingle citrumelo where trees appear healthy but have a clear indication of incompatibility at the bud-union. The existing trial trees of Fukumoto on C35 are also more dwarfed than the surrounding navel varieties on the same rootstock which may indicate incompatibility. The 6 year old orchards evaluated in the SRV are on Carrizo citrange and to date there have been no signs of the incompatibility that had been found in CA. From comments made by a number of CA citrus growers and technical people it would appear that well managed orchards planted using superior quality trees are performing well with no incompatibility problems evident.

Lane Late Navel

Origin

The Lane Late was discovered as a branch mutation on a Washington navel tree in 1952 at Curlwaa, near Mildura, Australia on the property of Lindsay Lane. Originally named Lane's Late it has now become known as Lane Late world wide.

Ownership

Open.

General Description

A mid to late maturing navel with very good internal quality and external appearance. In the East Cape citrus areas fruit matures early to mid July; fruit hangs well on the tree. In South Africa three selections were originally tested. The Californian selection has proved superior to the other two selections. This navel selection has helped extend the navel season although plantings have not been substantial.

Tree Characteristics

The tree is similar in growth, shape and yield to other average navel selections. Vigour is also similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit size is medium to large and navel ends are small to closed. Fruit shape is round. The fruit rind develops a

deep orange colour at maturity. Peelability and rind oil are reasonable and similar to most other navel selections. Internal flesh colour is orange, but flesh texture can be slightly tougher than other navels. The flavour is very good with high sugars, acid levels and a ratio of 10:1 early in July. Fruit size ranges from 70 to 80 mm (Counts 88 to 64) with normal crops.

Production

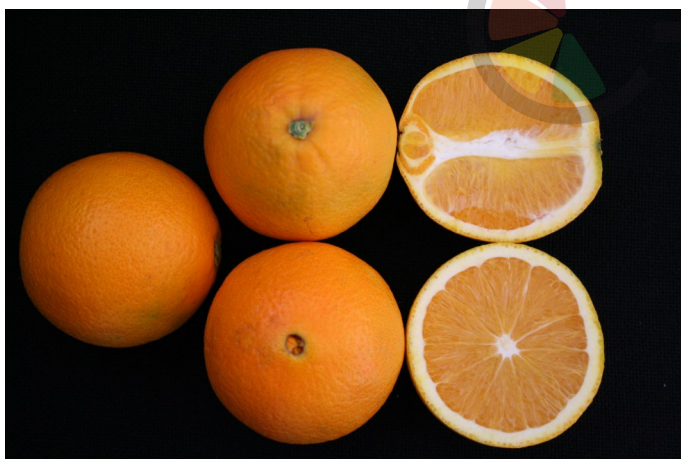
Yields of 50 to 60 tons per hectare are expected for mature orchards.

General

The Lane Late does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material are available from the Citrus Foundation Block.



Lane Late fruit showing typical colour, rind texture, rind thickness and shape.



Five year old Lane Late tree on Carrizo citrange showing typical production and fruit size (tree height 2.5m).

Updated: May 2012

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Lane Late on Swingle citrumelo - Count 56/64 - Sundays River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
26/06/2008	54.5	12.0	1.28	9.4	0	3-4
08/07/2008	52.6	11.4	1.17	9.7	0	1-3
22/07/2008	54.1	13.7	1.08	12.7	0	1

Count Distribution

Data still to be included.

Production

29.5 Kg per tree and 17 tons per hectare at 6 x 3 m spacing.

Note: These data are from 4 year old trees in the Dunbrody region of the Sundays River Valley for the 2008 season.

Export %

Data still to be included.

Comments

The Lane Late is a very good quality navel that is playing a role in extending the season of superior quality eating fruit.

Leng Navel

Origin

The Leng was discovered in 1935 as a branch mutation on a Washington navel tree on the property of the Leng Brothers, Irymple, near Mildura, Australia. Like the Bahianinha the Leng bears well, but fruit size is smaller than Washington. The Leng may well prove to be a navel selection more suited to the warmer areas.

Ownership

Open.

General Description

A slightly earlier maturing navel with good internal quality and appearance. Reports from the CCPP in California show the Leng to have slightly smaller fruit that matures in early November which would be early May in navel areas of South Africa. This selection has not been planted on any scale in South Africa. It may well be of value in areas where fruit size is too large.

Tree Characteristics

The tree is similar in growth, shape and yield to other navel selections. Vigour is also similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit size is a uniform medium and navel ends are medium to small depending on climate. Fruit shape is

round to slightly flattish. The fruit rind colour is uniform and develops a deep orange at maturity. Peelability can be more difficult due to thin rinds; rind oil is reasonable and similar to most other navel selections. Internal flesh colour is orange, and flesh texture is tender. The flavour is good with fruit reaching maturity in the Marble Hall area in early to mid March. Fruit size ranges from 75 to 65 mm (counts 72 to 105).

Production

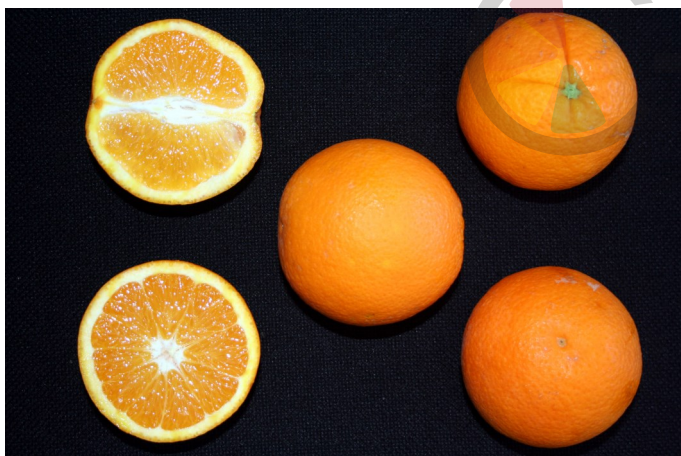
Yields of 15 to 20 tons per hectare are expected for mature orchards.

General

The Leng does not require crop manipulation. It is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Experimental - suitable navel areas. Limited quantities of propagation material are available from the Citrus Foundation Block.



Leng Navel fruit showing typical shape, colour, rind texture and small enclosed navel.



Six year old Leng Navel tree on Troyer citrange showing typical shape and yields.

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Leng Navel on Rough Lemon - Count 72 - Marble Hall						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
23/02/2009	41.5	9.0	1.13	8.0	0	1-2
23/03/2009	50.6	10.2	0.83	12.3	0	1-2
30/03/2009	50.5	9.9	0.78	12.7	0	1-2

Count Distribution

Count	48	56	64	72	88	105	125
%	3.6	9.1	4.9	23.3	15.9	30.1	13.2

Production

50.0 Kg per tree and 15.4 tons per hectare at 6.5 x 5 m spacing.

Export %

Grade	Percentage*
1	57.3
2, 3 & 4	42.7

* Low due to fruit size

Note: These data are from 24 year old trees in the Marble Hall region for 2007 to 2009 seasons.

Comments

The Leng is a good quality navel that could be of value in reducing fruit size in areas warmer than the traditional navel regions. In the Marble Hall area, planting at a spacing of 5.5 x 3.0 would be more realistic, which would give double the production per hectare. In Australia Leng was the main early maturing navel until Navelina became available.

Palmer Navel

Origin

A seedling tree mutation discovered in the Bathurst area near Grahamstown in 1950 by Tony Lombard, an Extension Officer of the SA Cooperative Citrus Exchange (SACCE). SACCE was later to become known as Outspan International. This nucellar Washington navel was the only source of virus free material prior to shoot tip grafting so it was used extensively in replant situations on Troyer citrange rootstock.

Ownership

Open.

General Description

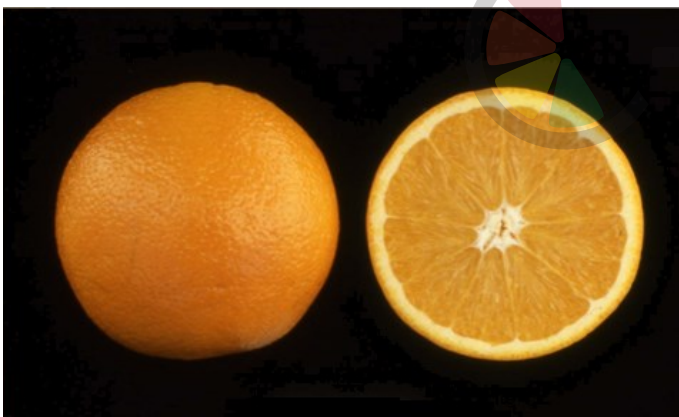
A mid maturing navel with very good internal quality and appearance. In the East Cape citrus areas fruit matures mid May to early June. This navel selection makes up a substantial part of the SA navel industry and as such is picked for 6 to 8 weeks in many areas leading to problems associated with harvesting immature or over mature fruit.

Tree Characteristics

The tree is similar in growth, shape and yield to other navel selections. Vigour is also similar to normal navels.

Rootstock Options

Although many older orchards are on Rough Lemon, suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.



Palmer navel fruit showing typical round shape, rind texture and colour.

Fruit Characteristics

Fruit size is a uniform medium large ranging from 85 to 70 mm and navel ends are small. The majority of fruit fall into counts 48 to 72 peaking at count 64. Fruit shape is round similar to average navel selections. The fruit rind colour is uniform and develops a deep orange at maturity. Peelability and rind oil are reasonable and similar to most other navel selections. Internal flesh colour is orange, and flesh texture is tender like other navels. The flavour is very good with high sugars, acid levels and a ratio of 10:1 late in May.

Production

Yields of 50 to 60 tons per hectare are normal for mature orchards. Young trees bear well.

General

The Palmer does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Creasing can



Eight year old Palmer Navel tree on Carrizo citrange (tree height 2.5m) under micro sprinkler irrigation.

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



be a problem, but much of this can be attributed to the extended harvesting season of this selection. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and availability

Commercial - suitable navel areas. Commercial quantities of propagation material available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Palmer Navel on Rough Lemon - Count 56 - Gamtoos River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
22/05/2008	48.5	9.8	1.13	8.7	0	2-4
29/05/2008	49.2	9.8	1.01	9.7	0	2-3
05/06/2008	49.2	9.8	0.93	10.5	0	1-3

Count Distribution

Count	36	40	48	56	64	72	88	105
%	0.4	4.6	10.6	27.8	30.7	15.3	8.5	2.1

Production

97.4 Kg per tree and 54 tons per hectare at 6 x 3m spacing.

Export %

Grade	Percentage
1	53.5
2	22.5
3 & 4	24.0

Note: These data are from 9 year old trees in the Patensie region of the Gamtoos Valley in the East Cape.

Comments

The Palmer has for many years been the main navel selection planted in South Africa. Due to its extended harvesting season with related problems some growers are abandoning Palmer plantings at this stage. Other growers have no problem with it. It is a very good quality navel that has carried SA through many years before other selections became available. This alone is not a reason to continue with it, but it will probably remain part of the navel mid season mix for many years to come.

Patensie Early Navel

Origin

A branch mutation discovered in a Palmer navel orchard on the farm of C. Malan in the Patensie area of the Gamtoos Valley during 2005. It is currently at the experimental stage and has not yet been released in South Africa.

Ownership

C. Malan - patent pending.

General Description

A very early maturing navel with very good internal quality and external appearance. In the Patensie area fruit matures during late March early April on Rough Lemon rootstock.

Tree Characteristics

The branch is similar in growth, shape and yield to the remainder of the tree. Vigour appears to be similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit size is a uniform medium to medium large. Navel ends are small to closed. Fruit shape is round and rinds are smooth, similar to the normal Palmer fruit on the tree. The fruit rind develops an orange colour during March and is 3 to 4 colour prints earlier than the other fruit on the parent Palmer navel tree. Peelability and

rind oil are reasonable and similar to most other Navel selections. Internal flesh colour is orange and flesh texture is soft and tender. The flavour is very good with high sugars, acid levels and a ratio of 10:1 late in March. It is currently the earliest maturing navel selection known in South Africa. Fruit size ranges from 70 to 85 mm (Counts 88 to 56) with normal crops.

Production

Unable to provide accurate figures relating to production until young trees are in bearing.

General

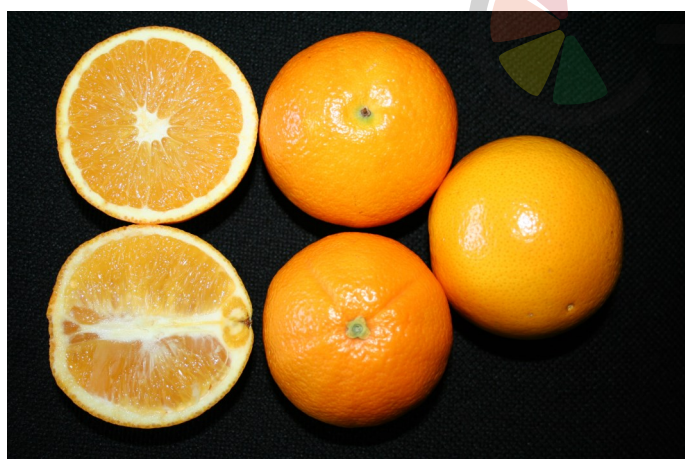
As with other navel selections it is probable that the Patensie Early will not require crop manipulation and it will not be susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders should be as for other navels.

Status, Area Suitability and Availability

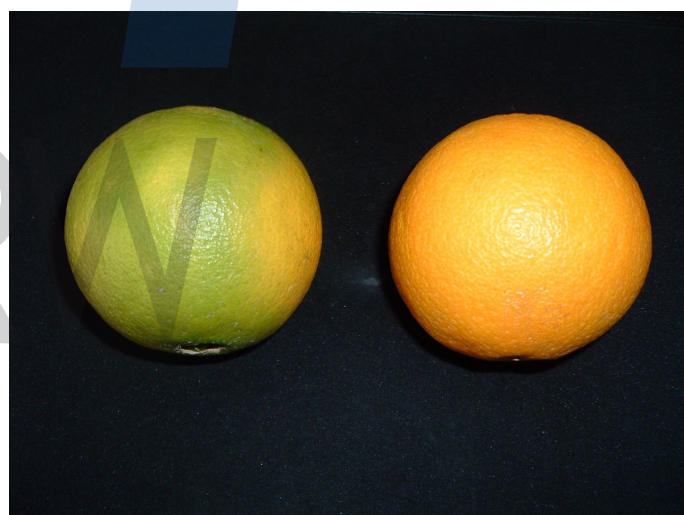
Experimental - suitable navel areas. Limited quantities of propagation material are available at the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.



Patensie Early Navel fruit showing typical bright orange colour, shape, rind texture, rind thickness and navel end.



Palmer navel (left) alongside Patensie Early navel (right) showing earlier colour.

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.





Evaluation Data

Internal Quality - Patensie Early on Rough Lemon - Count 56/64 - Gamtoos River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
01/04/2010	49.7	9.4	0.98	9.6	0	5
13/04/2010	53.7	9.8	0.80	12.3	0	3-4
20/04/2010	53.8	9.6	0.75	12.8	0	1-2
04/05/2010	37.5	9.5	0.67	14.2	0	1

Note: Numbers of fruit had to be reduced for testing due to limited availability of fruit on the branch.

Count Distribution

Insufficient data available to give an accurate count distribution.

Production

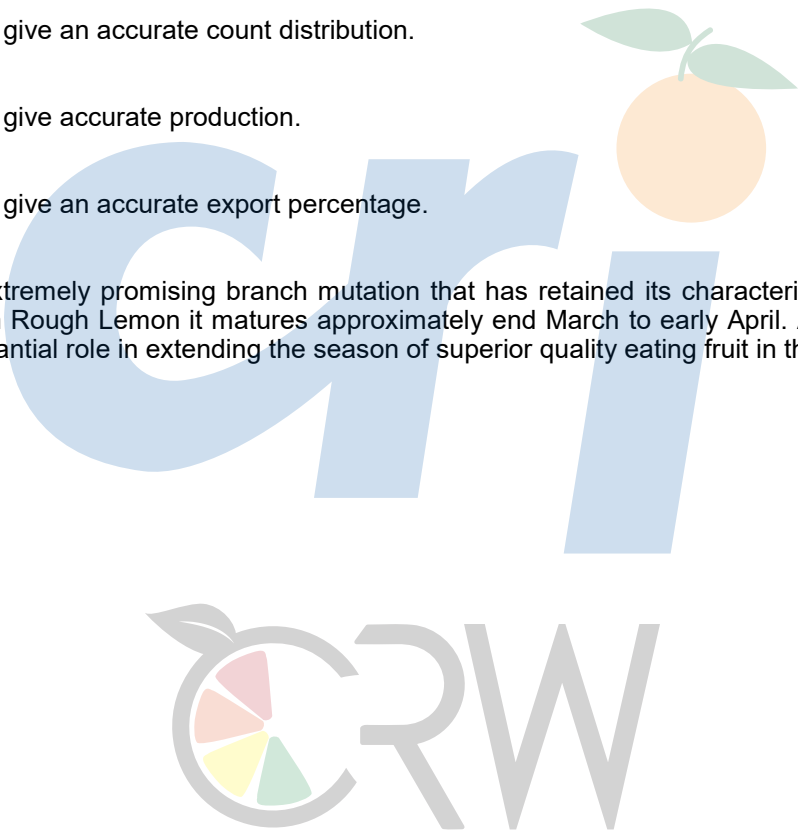
Insufficient data available to give accurate production.

Export %

Insufficient data available to give an accurate export percentage.

Comments

The Patensie early is an extremely promising branch mutation that has retained its characteristics for the past three years. Based on the fruit on Rough Lemon it matures approximately end March to early April. As an early start to the season it could play a substantial role in extending the season of superior quality eating fruit in the discerning markets.



Powell Summer Navel

Origin

A tree mutation discovered in 1986 in Curlwaa, Australia on the property of Neil Powell.

Ownership

Protected by non-propagation agreement and managed by CGA Cultivar Company.

General Description

A late maturing navel with very good internal quality and external appearance. In the East Cape citrus areas fruit matures late June to mid July. In South Africa six late maturing navel selections from Australia have been tested and to date Powell has been planted on a limited basis. This navel selection could help to extend the navel season although plantings have not been excessive.

Tree Characteristics

The tree is similar in growth, shape and yield to other navel selections. Vigour is also similar to normal navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit size is a fairly uniform medium large. Navel ends are small to closed. Fruit shape is round. The fruit rind develops a deep orange colour at maturity. Peelability and rind oil are reasonable and similar to most other

navel selections. Internal flesh colour is orange, and flesh texture is tender. The flavour is very good with a ratio of 10:1 early in July. Fruit size ranges from 73 to 88 mm (Counts 48 to 72) with normal crops.

Production

Yields of 50 to 60 tons per hectare are expected for mature orchards. Young trees bear well.

General

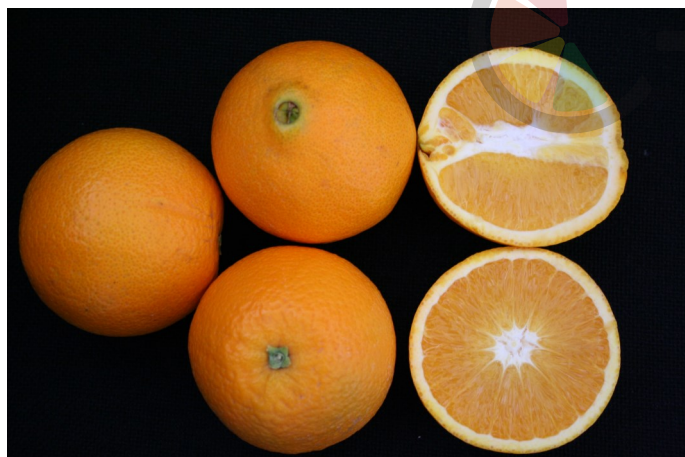
The Powell does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.



Powell fruit showing typical rind texture, colour and shape; navel end varies from small to closed.



Five year old Powell Summer tree on Carrizo citrange showing typical production and fruit size (tree height 2.5m).

Updated: May 2012

Evaluation Data

Internal Quality - Powell Summer on Swingle citrumelo - Count 56 - Sundays River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
26/06/2008	51.5	10.0	1.05	9.5	0	3-4
08/07/2008	50.4	10.9	1.09	10.0	0	1-3
22/07/2008	52.8	13.2	1.13	11.7	0	1-2

Count Distribution

Count	32	36	40	48	56	64	72	88	105	125
%	0.7	4.7	6.4	16.6	33.2	19.3	11.1	6.0	1.9	0.1

Production

21.9 Kg per tree and 12.2 tons per hectare at 6 x 3 m spacing.

Export %

Grade	Percentage
1	30.7
2	29.2
3 & 4	40.1

Note: These data are from 4 year old trees in the Dunbrody region of the Sundays River Valley for the 2008 season.

Comments

The Powell is a very good quality navel that could play an important role in extending the season of superior quality eating fruit.

Suitangi Navel

Origin

Discovered as a tree mutation in a Palmer navel orchard on the farm of Igmar Ferreira in the Patensie area of the Gamtoos Valley in 2006. Suitangi is under evaluation as an experimental cultivar.

Ownership

Owned and managed by CGACC.

General Description

A late maturing navel with excellent internal quality and external appearance. In the area of the Sundays River Valley fruit matures from mid May to mid June on Carrizo citrange rootstock; fruit hang well on the tree.

Tree Characteristics

The tree is similar in growth, vigour, shape and yield to most navel selections.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether orchard establishment is on a replant site or virgin soil. Rootstocks that induce lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit are uniform, medium to medium-large. Navel ends are very small to closed. Fruit shape is round with occasionally elongated fruit and rinds are smooth, similar to average navel selections. The fruit rind develops a deep orange colour at maturity. Peelability and rind oil are reasonable and similar to most other Navel selections.

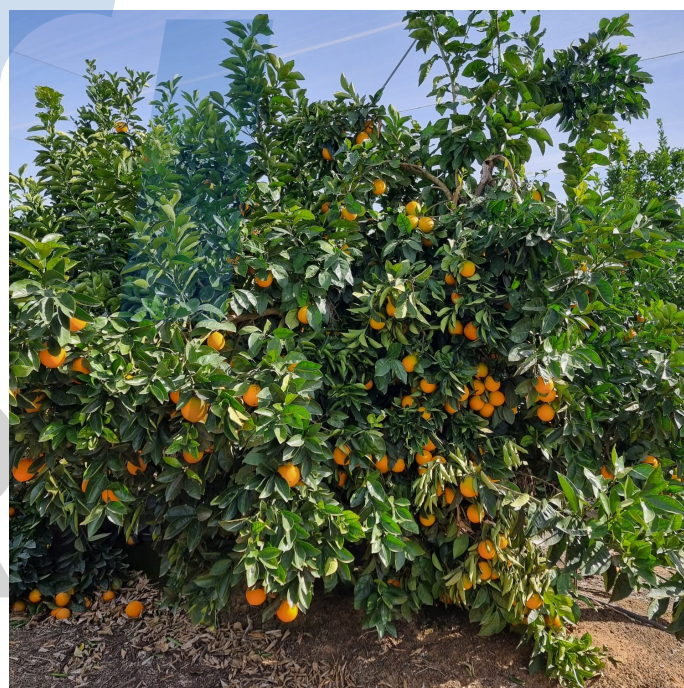
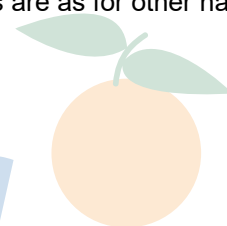
Internal flesh colour is orange and flesh texture is soft and tender. The flavour is very good with high sugars, good acid levels and a ratio of 10:1. Fruit size ranges from 70 to 85mm with normal crops.

Production

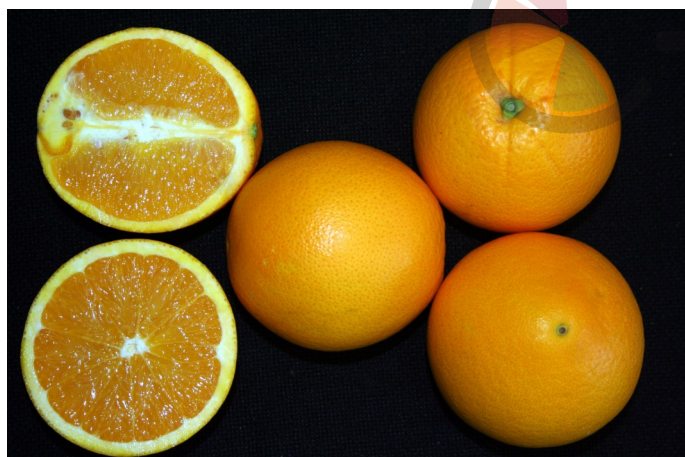
Yields appears to be good.

General

Suitangi does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements and post harvest disorders are as for other navels.



Suitangi Navel tree on Rough Lemon showing typical navel growth and spread of good sized fruit (tree height 2.5m).



Suitangi navels showing typical smooth rinds, shape and closed navel ends.

Updated: July 2024

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Status, Area Suitability and Availability

Experimental - suitable navel areas. Propagation material is not yet available from the Citrus Foundation Block due to virus eradication procedures.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Suitangi on Rough Lemon - Count 64 - Gamtoos River Valley						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
23/07/08	54.7	14.0	1.03	13.6	0	1-2
08/08/08	59.2	15.0	0.94	16.0	0	1
21/08/08	57.6	14.4	0.95	15.2	0	1

Count Distribution

There is insufficient information at this stage to give an accurate count distribution.

Production

There is insufficient information at this stage to give accurate production.

Export %

There is insufficient information at this stage to give an accurate export percentage.

Comments

The Suitangi is a very good quality navel that should be on citrange or citrumelo rootstock to increase acid levels and give it a more realistic maturity date. Based on the fruit on Rough Lemon it matures approximately mid July, but if it were on higher acid inducing rootstocks it should mature late July to mid August. It could then play a substantial role in extending the season of superior quality eating fruit in the discerning markets. The fruit hangs well on the tree.



Tulegold Navel

Origin

The Tulegold was discovered as a branch mutation on a Washington navel tree in California, but exact details of its origin are vague.

Ownership

Open.

General Description

An earlier maturing navel than Washington with very good internal quality and external appearance. The tree itself is similar to the Washington parent, but the fruit colours earlier and stores well on the tree in South African evaluations. Tulegold has shown to be dwarfed in Californian plantings with stem lesions a possible cause of this problem; this has not occurred in SA plantings in the East Cape to date. It matures in early May, i.e. 3 weeks before Palmer, but hangs well into early July in the East Cape Midlands.

Tree Characteristics

The tree is less vigorous than most navel selections, but shape and yield are similar to other average navels.

Rootstock Options

Suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit are a uniform medium large. Navel ends are small



Mature Tulegold navels showing typical shape, rind colour and texture as well as hidden closed navel.

to closed, but this hides an open structure beneath the navel. Fruit shape is round and rinds are smooth. The fruit rind develops a deep uniform orange colour at maturity. Peelability and rind oil are reasonable and similar to most other Navel selections. Internal flesh colour is orange and flesh texture is soft and tender. The flavour is very good with high sugars, acid levels and a ratio of 10:1 in mid May. Fruit size ranges from 85 to 70 mm (Count 56 to 88) with normal crops. Fruit hangs well on the tree.

Production

Yields of 50 to 60 tons per hectare are expected for mature orchards. Young trees bear well.

General

The Tulegold does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Experimental - suitable navel areas. Propagation material is currently not available at the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.



Tulegold and Palmer navels showing colour variation early in the season.

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.





Evaluation Data

Internal Quality - Tulegold on Troyer citrange - Count 56 - East Cape Midlands						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
22/04/2009	50.4	11.8	1.21	9.8	0	4
06/05/2009	47.7	12.1	1.24	9.8	0	1-2
13/05/2009	48.9	11.8	1.17	10.1	0	1-2
17/06/2009	50.7	12.9	1.10	11.7	0	1

Count Distribution

Insufficient data available to give an accurate count distribution.

Production

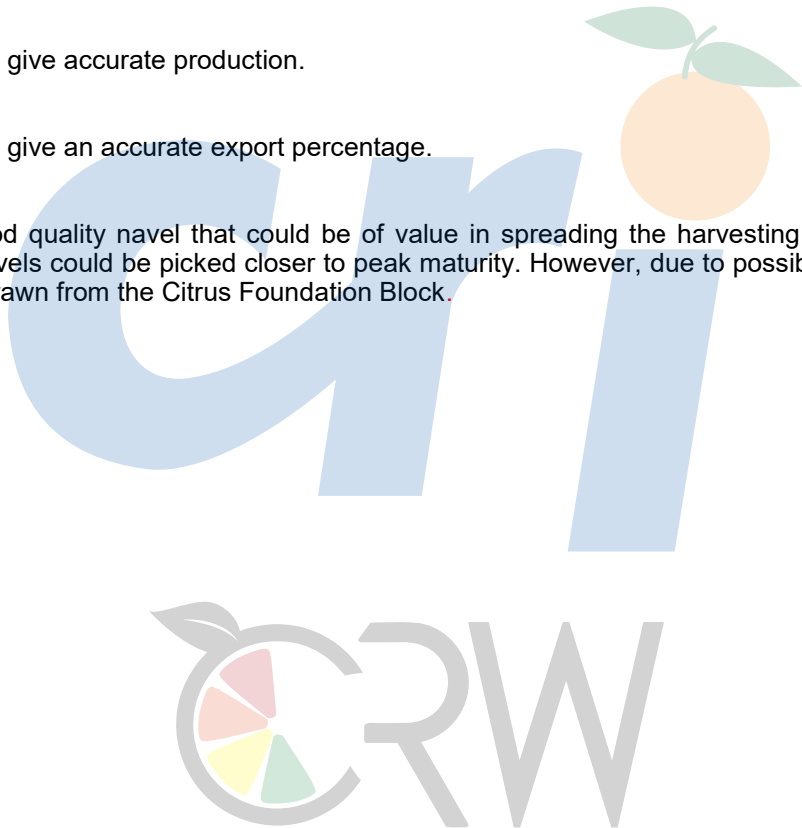
Insufficient data available to give accurate production.

Export %

Insufficient data available to give an accurate export percentage.

Comments

The Tulegold is a very good quality navel that could be of value in spreading the harvesting season earlier so that Palmer and Washington navels could be picked closer to peak maturity. However, due to possible compatibility issues, this cultivar has been withdrawn from the Citrus Foundation Block.



Washington Navel

Origin

The origin of the Washington or Parent navel, the source of all navel trees, is controversial as it was originally thought to have originated in Bahia, Brazil in the early 1800s. There is however evidence to prove the existence of navel oranges prior to this time. The world expansion of navels however only really started after the Bahia navel was sent to Washington in 1870 and since then it has become one of the most popular eating oranges world wide.

Ownership

Open.

General Description

A mid maturing navel with excellent internal quality and appearance. In the East Cape citrus areas fruit matures late May to mid June. This navel selection has shown such promise through the years that it makes up a large percentage of navel plantings throughout the world.

Tree Characteristics

The tree is similar in growth, shape and yield to other navel selections. Vigour is also similar to normal navels.

Rootstock Options

Although many older plantings still exist on Rough Lemon rootstock in South Africa, suggested rootstocks are Swingle citrumelo and Carrizo/Troyer citrange, depending on soil type and whether plantings are on new or replant ground. Rootstocks inducing lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit size is a uniform medium large and navel ends are

medium to small. Fruit shape is round. The fruit rind colour is uniform and develops a deep orange at maturity. Peelability and rind oil are reasonable and similar to most other navel selections. Internal flesh colour is orange, and flesh texture is tender. The flavour is excellent with high sugars, acid levels and a ratio of 10:1 early in June. Fruit size ranges from 85 to 70 mm (Count 56 to 88) with normal crops.

Production

Yields of 50 to 60 tons per hectare are normal for mature orchards. Young trees bear well.

General

The Washington does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.

Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.



Washington navel fruit showing typical rind texture, shape and navel.

Updated: May 2012

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.





Evaluation Data

Internal Quality - Washington Navel on Troyer citrange - Count 56 - East Cape Midlands.						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
28/05/2008	52.1	11.7	1.24	9.4	0	2-3
04/06/2008	53.6	11.6	1.10	10.5	0	1-2
11/06/2008	51.9	10.7	1.02	10.5	0	1

Count Distribution

Count	36	40	48	56	64	72	88	105
%	0.3	1.4	4.1	20.2	24.5	24.3	18.0	7.2

Production

105.2 Kg per tree and 44 tons per hectare at 6 x 4 m spacing.

Export %

Grade	Percentage
1	56
2	22
3 & 4	22

Note: These data are from 9 year old trees in the Patensie region of the Gamtoos River Valley in the East Cape for the 2008 season.

Comments

The Washington is an excellent quality navel that forms a substantial percentage of navel plantings and now fills the mid season period.

Witkrans Navel

Origin

A natural mutation discovered in a Palmer navel orchard on a farm called Witkrans in the Boshhoek area near Rustenburg on the property of Abraham Grobler.

Ownership

Owned by Johan Chris Grobler and managed by Citrogold.

General Description

A late maturing navel with excellent internal quality and appearance. In the East Cape fruit matures from mid July to mid August. This navel selection showed promise as a late maturing cultivar and is commercially planted.

Tree Characteristics

The tree is similar in growth, vigour, shape and yield to other navel selections.

Rootstock Options

Suggested rootstocks are Swingle citrumelo, Carrizo citrange and X639, depending on soil type and whether orchard establishment is on a replant site or virgin soil. Rootstocks that induce lower sugars and acid levels are not advised.

Fruit Characteristics

Fruit size is medium to medium-large and navel ends are small to closed. Fruit shape is round, similar to most navel selections. The fruit rind colour is uniform and develops a deep orange at maturity. Peelability and rind oil are reasonable and similar to most other navel selections. Internal flesh colour is orange, and flesh texture is tender like other navels.

The flavour is excellent with high sugars, acid levels and a ratio of 10:1 towards the mid to end of June. This selection fits in well with the late navels selections as it colours slightly earlier and more uniformly, giving growers an earlier option in the late maturing navel range which has superior eating quality. Fruit size ranges from 68 to 86 mm with normal crops.

Production

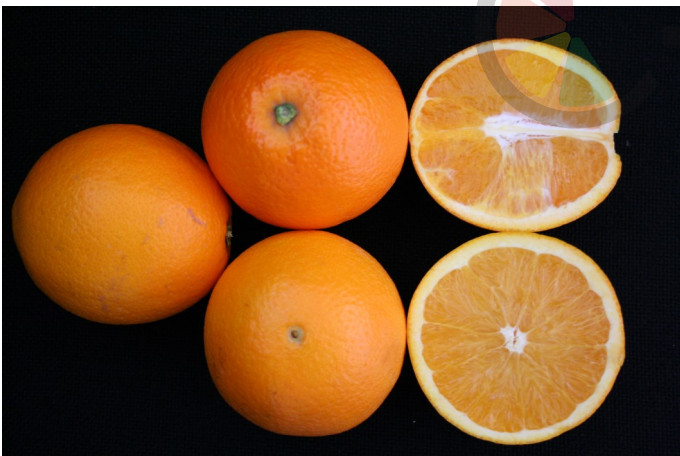
Yields of 50 to 60 tons per hectare are normal for mature orchards. Young trees bear well.

General

The Witkrans does not require crop manipulation and it is not susceptible to any pests and/or diseases other than those common to other navel selections. Harvest, packing and shipping requirements as well as post harvest disorders are as for other navels.



Witkrans navel tree on Carrizo citrange showing typical shape and good yields (tree height 2m).



Witkrans navel fruit showing typical rind thickness, texture, shape and navel.

Updated: July 2024

Copyrights © 2024 Citrus Research International (Pty) Ltd. Reg. No. 2001/007745/07 All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the represented parties.

Disclaimer: Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.



Status, Area Suitability and Availability

Commercial - suitable navel areas. Commercial quantities of propagation material are available from the Citrus Foundation Block.

Key References

The information in this fact sheet is based on evaluations by Citrus Research International.

Evaluation Data

Internal Quality - Witkrans Navel on Carrizo citrange - Count 56 - Sundays River Valley.						
Date	Juice %	Brix	Acid	Ratio	Seed	Colour
2009/07/01	57.4	10.2	0.80	12.8	0	4-5
2009/07/07	57.1	10.6	0.81	13.1	0	1-3
2009/07/14	55.0	11.4	0.90	12.7	0	1-2

Count Distribution

Data still to be included.

Production

Data still to be included.

Export %

Data still to be included.

Comments

The Witkrans is an excellent quality navel that is already receiving attention and should play a substantial role in extending the season of superior quality eating fruit.